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THESIS

**PROGRAM BUDGETING TO IMPROVE DECISION MAKING
AND RESOURCE PLANNING IN ESTONIAN DEFENSE**

by

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June 2001

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After identifying missions of the current military strategy, goals of the Estonian defense, and the structure of the current defense budget, the thesis analyses the strengths and weaknesses of the current defense budget structure and concludes that although it scores high on one major budgeting function – control -, it does not support rational decision making at the top of Estonian defense establishment. To improve the situation the thesis identifies several alternative ways to structure and present budgetary information and assesses their strengths and weaknesses. And finally, some suggestions for further research conclude the study.

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**PROGRAM BUDGETING TO IMPROVE DECISION MAKING AND
RESOURCE PLANNING IN ESTONIAN DEFENSE**

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Ministry of Defense of Estonia
B.A., Tartu University, 1995

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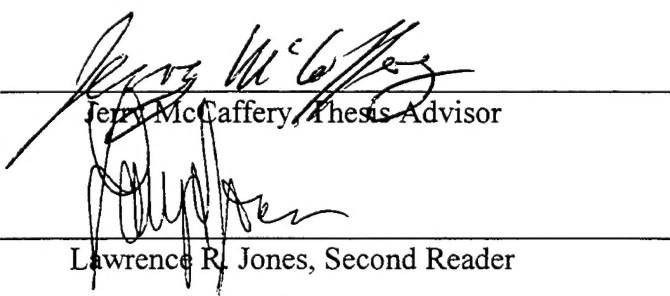


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TABLE OF CONTENTS

I.	INTRODUCTION.....	1
A.	BACKGROUND	1
B.	PURPOSE.....	2
C.	SCOPE AND METHODOLOGY	3
D.	ORGANIZATION OF STUDY	4
II.	THEORETICAL FRAMEWORK	7
A.	BUDGETING AND DECISION MAKING	7
B.	BUDGET STRUCTURE AND DECISION MAKING	10
C.	TRADITIONAL INCREMENTAL BUDGETING AND ZERO-BASED BUDGETING.....	13
1.	Traditional Incremental Budgeting.....	13
2.	Zero-Based Budgeting (ZBB).....	15
3.	Target-Based Budgeting (TBB)	17
D.	LINE-ITEM BUDGETING	18
E.	PERFORMANCE BUDGETING.....	20
1.	Classification Problems	20
2.	The Essence of Performance Budgeting	21
F.	PROGRAM BUDGETING AND PPBS.....	23
1.	Classification Problems	23
2.	Program Budgeting.....	24
3.	Planning, Programming and Budgeting System (PPBS).....	27
a.	<i>Planning</i>	30
b.	<i>Programming</i>	31
c.	<i>Budgeting</i>	31
G.	MISSIONS AND MISSION BUDGETING.....	33
H.	CONCLUSION	38
III.	TRANSLATING DEFENSE PLANS INTO BUDGETS: STRUCTURAL AND ANALYTICAL ASPECTS OF THE MILITARY PROGRAM BUDGET.....	41
A.	THE CONCEPT OF PROGRAMMING.....	41
B.	PROGRAMMING AND ANALYSIS IN ACTION.....	43
C.	A CHALLENGE FOR PRACTICAL PROGRAMMING	48
D.	PROGRAMMING AND RATIONAL DECISION MAKING.....	49
IV.	BACKGROUND TO THE STUDY	53
A.	THE MISSIONS OF THE ESTONIAN DEFENSE FORCES (EDF)	53
B.	THE ESTONIAN DEFENSE FORCES AND THE MEDIUM-TERM DEVELOPMENT GOALS	58
1.	The Estonian Defense Forces (EDF)	58
2.	Medium-Term Development Goals.....	60

C.	THE PLANNING AND BUDGETING PROCESS OF THE MINISTRY OF DEFENSE	62
D.	THE STRUCTURE OF THE ESTONIAN DEFENSE BUDGET	64
1.	Requirements from the State Budget Act – Broad Level of Classification	65
2.	Requirements from the Classification of Revenues and Expenditures – Medium Classification Level.....	66
3.	Lower Levels of Expenditure Classification.....	69
V.	ANALYSIS OF THE ESTONIAN DEFENSE BUDGET STRUCTURE	71
A.	FUNCTIONS AT WHICH THE CURRENT BUDGET STRUCTURE EXCELS.....	71
B.	SELECTION AND SPECIFICATION OF ASSESSMENT CRITERIA FOR RATIONAL DECISION MAKING	73
C.	THE CURRENT BUDGET STRUCTURE AND RATIONAL DECISION MAKING	76
1.	Criterion One and the Budget Structure.....	77
a.	<i>First Mission Package: Training and Education</i>	77
b.	<i>Second Mission Package: Readiness</i>	78
c.	<i>Third Mission Package: Alliances and Partnerships</i>	79
d.	<i>Fourth Mission Package: Mobilization and Deployment</i>	80
e.	<i>Fifth Mission Package: Wartime Operations</i>	80
f.	<i>Sixth Mission Package: Defense Support to Civil Authorities</i>	81
g.	<i>Seventh Mission Package: Monitoring and Control over Airspace and Territorial Waters</i>	81
h.	<i>Budget Structure and the Development Goals</i>	81
i.	<i>Conclusion</i>	83
2.	Criterion Two and the Budget Structure.....	83
a.	<i>First Mission Package: Training and Education</i>	83
b.	<i>Second Mission Package: Readiness</i>	85
c.	<i>Third Mission Package: Alliances and Partnerships</i>	85
d.	<i>Fourth Mission Package: Mobilization and Deployment</i>	85
e.	<i>Fifth Mission Package: Wartime Operations</i>	85
f.	<i>Sixth Mission Package: Defense Support to Civil Authorities</i>	86
g.	<i>Seventh Mission Package: Monitoring and Control over Airspace and Territorial Waters</i>	86
h.	<i>Budget Structure and the Development Goals</i>	86
i.	<i>Conclusion</i>	86
3.	Criterion Three and the Budget Structure.....	86
4.	Criterion Four and the Budget Structure.....	88
5.	Criterion Five and the Budget Structure.....	89
6.	Criterion Six and the Budget Structure.....	90
D.	CONCLUSION FOR CHAPTER V.....	90
VI.	RECOMMENDATIONS.....	95

A.	INTRODUCTION.....	95
B.	SELECTING THE PROGRAM STRUCTURE.....	96
1.	The First Alternative: Programs Based on Wartime Forces	96
2.	The Second Alternative: Programs Based on Missions of the Strategy- a Detailed Approach	104
3.	The Third Alternative: Programs Based on Missions of the Strategy- a Simplified Approach	109
C.	CONCLUSION TO CHAPTER VI.....	115
VII.	CONCLUSION	117
A.	PROBLEM SUMMARY	117
B.	SUMMARY OF RECOMMENDATIONS.....	118
C.	SUGGESTIONS FOR FURTHER RESEARCH.....	118
	APPENDIX A. AN EXAMPLE OF A ZERO-BASED BUDGET FORMAT	121
	APPENDIX B. LINE ITEM BUDGET FORMATS.....	123
	APPENDIX C. EXAMPLE OF A PERFORMANCE BUDGET FORMAT	125
	APPENDIX D. NON-DEFENSE PROGRAM BUDGET FORMATS	127
	APPENDIX E. THE NEW MANAGEMENT CONTROL STRUCTURE FOR DOD AS PROPOSED BY THOMPSON (1991) AND THOMPSON AND JONES (1994).....	129
	APPENDIX F. THE STRUCTURE OF THE ESTONIAN DEFENSE BUDGET FOR 2001 AS ADOPTED BY THE PARLIAMENT	131
	APPENDIX G. PROPOSED MISSION PACKAGES	137
	LIST OF REFERENCES.....	143
	INITIAL DISTRIBUTION LIST	147

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LIST OF TABLES

Table 1.	Costs from Operating Budgets of a Peacetime Unit (Second Infantry Reserve Battalion, Program 1).....	98
Table 2.	Special Equipment and Military Clothing for Training (Second Infantry Reserve Battalion, Program 1).....	99
Table 3.	Special Equipment and Military Clothing for Mobilization Reserve (Second Infantry Reserve Battalion, Program 1).....	99
Table 4.	Investments (Second Infantry Reserve Battalion, Program 1).....	99
Table 5.	Other Costs (Second Infantry Reserve Battalion, Program 1).....	100
Table 6.	An example of the New Codes for Current Budget Articles.	100
Table 7.	Description of Programs.	106

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ACRONYMS

A	Army
BALTBAT	Baltic Battalion (a joint project of Estonia, Latvia and Lithuania)
BALTDEFCOL	Baltic Defense College
BALTRON	Baltic Naval Squadron
BALTNET	Baltic Air Surveillance Project
DoD	Department of Defense
DPG	Defense Planning Guidance
EDF	Estonian Defense Forces
F	Air Force
FY	Future Year
FYFSP	Five-Year Force Structure and Financial Program
FYDP	Future Year Defense Plan
HNS	Host Nation Support
MoD	(Estonian) Ministry of Defense
N	Navy
O&M	Operations and Maintenance
PAP	Planning and Accountancy Process
PE	Program Element
PPB	Planning, Programming and Budgeting
PPBS	Planning, Programming and Budgeting System(s)
OSD	Office of the Secretary of Defense
R&D	Research and Development
TBB	Target-Based Budgeting
ZBB	Zero-Based Budgeting

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I. INTRODUCTION

A. BACKGROUND

After regaining independence in 1991, the Estonian Armed Forces also had to be rebuilt. As in Latvia and Lithuania, Estonia did not inherit any military equipment from the Soviet Armed Forces. As a result, the Estonian Armed Forces were rebuilt from scratch. Initially people could not even agree on whether the Armed Forces were needed at all. After the decision to reestablish the Armed Forces had finally been made, their size and composition was still under consideration. In the absence of sound analysis and considering that the Government did not regard the national defense as a priority, no systematic development took place during the first half of the 1990s. The Government established military units and procured defense related goods, but thorough analysis regarding missions, goals, effectiveness and feasibility was secondary.

In the middle of the 1990s those questions gradually began to gain more attention than before. A formal planning process that linked threat analysis, national priorities and resources with the development of military capabilities was established in 1997. Although quite clear and easy to do on paper, its implementation has been difficult. Although this is not the only reason, the difficulty in linking the current defense budget with the defense plans and programs in an acceptable manner has significantly contributed to the problem. The current defense budget is based on regulations established by the Ministry of Finance, but this structure is not well suited to internal decision-making purposes in the Ministry of Defense (MoD) and its sphere of administration.

In early 2001, the Estonian Government adopted the National Military Strategy document that will form the basis for the future development of the national defense. The strategy gives a number of missions to the Armed Forces. The preparation for them will be carried out through the defense planning and budgeting process. According to this process, the Estonian MoD writes planning guidance to the General (Joint) Staff of the Estonian Defense Forces. The General Staff is responsible for detailed military planning and composes its plans and budgets as a response to the ministerial planning guidance. These are sent to the Ministry of Defense for review. The author of the thesis has participated in analyzing these defense plans and budgets before starting his studies at NPS in 1999. A frequently encountered problem was the incompatibility of the military plans with the budget proposal. The information was often structured differently, allowing little insight into the link between these two documents. In fact, the MoD could often see neither the link between the General (Joint) Staff plans and its proposed budgets nor the link between General (Joint) Staff budget proposals and ministerial guidance. A more detailed description of the Estonian defense planning process and the problems associated with the current budget structure are given in the following chapters.

B. PURPOSE

The thesis addresses the problem of an insufficient linkage between the military strategy, defense-related development goals, budgets and rational planning and decision making. In particular, it focuses on the shortcomings of the current budget structure used in the MoD and its sphere of administration. The working hypothesis of the thesis is that the current structure of the Estonian defense budget¹ does not support rational,

¹ For the purposes of this thesis, the defense budget means the budget of the sphere of administration of Estonian Ministry of Defense (MoD).

conceptual decision-making by carrying out the missions of the military strategy and implementing the development goals in the MoD sphere of administration regarding the needs of top-level decision makers.

The thesis has three objectives. First, it examines the Estonian defense budget structure and assesses its strengths and weaknesses. The focus of the analysis is on its suitability for rational decision-making in the MoD and top-level military decision makers. Second it proposes alternative ways to structure budgetary information that could be more suitable for this purpose. The third objective is developing a reference material about different budgetary approaches in general and about requirements for structuring budgetary information to support top-level decision-making in defense that could serve future budget reformers in Estonian national defense.

C. SCOPE AND METHODOLOGY

The thesis includes:

- A general discussion about decision-making in budgeting, about the influence of the budget structure on decisions that can be made in the budgetary process and about the criteria a budget structure must meet to support making rational decisions
- A review of the most important budgetary approaches and budget formats that have been applied during the 20th century, their strengths and weaknesses
- An in-depth review of program budgets (and budgeting) and mission budgeting,
- A review of the missions of the Estonian Military Strategy, the structure of Estonian defense budget and more generally, of the Estonian defense planning process
- An analysis of the Estonian defense budget structure regarding its strengths and weaknesses for different purposes, especially regarding its suitability for rational decision making
- Recommendations for structuring budgetary information for Estonian defense that would better support rational decision making

For the purposes of making the topic manageable, the thesis will not investigate the political feasibility of the proposed budgetary changes and the implications of implementing the proposed budget structures with the current accounting system in the Estonian defense. As these aspects are nevertheless important, further research is necessary to ensure that the proposed changes can actually be implemented.

The research uses unclassified primary (Estonian planning and budgeting documents) and secondary (budgetary and planning literature) sources. The author will also draw on his own personal experience. Having to leave classified Estonian budgeting and planning documents out of consideration is a limitation.

D. ORGANIZATION OF STUDY

The remainder of the thesis is broken down into six chapters. Chapter II gives the overall theoretical foundation to the study and is based on literature review. Chapter III is a continuation of the previous chapter and investigates the link between plans and budgets in greater depth. Chapter IV gives the background information about the Estonian defense and the defense budget for the study. Chapter V analyses the Estonian current defense budget structure and Chapter VI gives recommendations for establishing alternative budget structures for rational decision making. Chapter VII presents conclusions.

More specifically, Chapter II discusses the connection between budgeting, budget structure and decision making, and discusses possible criteria for a budget structure that would support rational decision making. The rest of the chapter gives an overview of different budgetary approaches, their advantages and disadvantages, and the skills they require.

Chapter III is a logical continuation of Chapter II and discusses how a defense plan should be translated into a budget so that the decisions made during that process would remain rational. In particular, it focuses on the structural and analytical aspects of programming in defense.

Chapter IV gives Estonia-specific information by naming the current missions of the strategy, describing the forces and their broad mid-term goals of development, the existing planning and budgeting procedures and gives the structure of the defense budget.

Chapter V analyzes the current defense budget structure showing its strengths and weaknesses, based on the information given in previous chapters. The stress will be on the question of whether the current budget structure supports rational decision making or not.

Chapter VI takes the results of the analysis in Chapter V into consideration and proposes three alternative ways to the structure budgetary information that would strengthen the linkage between the missions of the strategy and defense plans and budgets that could facilitate rational planning and decision-making in the Ministry of Defense and General (Joint) Staff.

Chapter VII gives concluding remarks and suggests topics for further research.

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II. THEORETICAL FRAMEWORK

A. BUDGETING AND DECISION MAKING

Budgeting is a controversial subject. Despite intensive research there is still no comprehensive budget theory as was noticed by Key (1978, pp. 19-23). The answer to his fundamental question - on what basis shall it be decided to allocate x dollars to activity A instead of activity B – is no more clearer today than it was about 60 years ago². Yet public budgeting systems must somehow allow making choices among ends and means as Lee and Johnston (1983, p. 1) note³. They further note that this means making political decisions that allocate scarce resources among alternative uses. In this sense all budgeting systems or processes are also decision-making systems or processes.

As there is no common criterion for allocating resources, all attempts and ways to structure budgetary information for different purposes are arbitrary to a certain extent. However, as will be seen later in this chapter some ways to structure budgetary information have more utility to certain purposes than for others. There are different functions that a budget must fulfill at the same time, and those different functions require different kinds of information. This and the lack of the budget theory, are probably the most important reasons why there has been so much criticism about the inadequacy of budget structures.

The third reason is probably the limitation of human capabilities. This deserves further attention. There are different approaches to decision-making that assume different

² Key's article was published first in 1940.

³ Of course, this applies also to private budgeting systems, but the authors do not discuss this field.

abilities of people in analyzing available information and their willingness to do comprehensive analysis. Lee and Johnston (1983, pp. 15-20) give three basic theories of decision-making⁴: pure rationality, muddling through or incrementalism, and limited rationality that are described next.

The pure rationality approach consists of a series of ordered, logical steps. First, a complete specification of an organization's goals is ranked by priority. Then all possible alternatives are identified and the costs of each alternative are compared with anticipated benefits and the alternative with the highest cost-benefit ratio is chosen. This approach assumes that complete and perfect information about all alternatives is both available and manageable. The problem is that the applicability of this model is limited. Usually the information is incomplete and the costs of getting more accurate information increase at an increasing rate. The limited capability (time and mental energy) of decision-makers and analysts to consider all possible alternatives is also a serious constraint in this approach. Since adding just a few more variables into the analysis exponentially increases the number of possible alternatives to be considered, no budgeting approach is purely rational, because it is generally impossible to consider all available alternatives in the strict sense of the word.

Muddling through or incrementalism stresses political aspects of decision-making, arguing that only incremental adjustments allow establishing consensus among relevant participants of decision-making that would be almost impossible under a pure

⁴ There are actually more different theories, but the authors group them all into these three broad categories.

rationality approach. This approach will be described in the further paragraphs, as it is also one of the most important budgeting approaches.

The third approach, limited rationality, lies somewhere in between these extremes, but the exact position is difficult to determine. It argues that considering the most important alternatives as opposed to all alternatives at the broad, long term planning level and incremental analysis of immediate short-term effects of the selected alternative(s) is the superior way to make decisions.

Anshen (1969, pp. 5-6) supports the rational or limited rationality approach by noting that in the context of resource allocation, budgeting is concerned with deciding on the allocation of scarce and reasonably well-defined inputs to attain well or not-so well-defined objectives. He breaks this process down into three parts: the determination of the most efficient way to attain given objectives, determination of the optimal set of concurrent objectives and determination of the optimal size of the total budget. He maintains that a good budget system supports and informs judgment by providing relevant information for making these rational decisions. There are three criteria for relevancy:

- Aggregation of information in totals that illuminate meaningful decision alternatives and aid rational comparisons among them
- With respect to each alternative objective, identification and summation of all pertinent input requirements, both current and future
- Organization of information in detail that facilitates the efficiency measures of inputs in relation to outputs, means in relation to ends, investment in relation to payback (i.e. cost-utility analysis)

Because the pure rationality approach is unachievable in practice and the limited rationality is the next-best approach to rationality, from now on the thesis will use the

term “rationality” in the sense of “limited rationality” for convenience. A number of budgeting approaches, especially program budgeting (and PPBS) and zero-based-budgeting, but also performance budgeting satisfy these criteria, although the last two pay relatively little attention to the future. The major budgeting approaches will be described in the following parts of this chapter. However, the next paragraphs first give the rationale why budget structure matters.

B. BUDGET STRUCTURE AND DECISION MAKING

Choosing an adequate budget structure or format is not a trivial exercise. Burkhead (1956, pp. viii, 110) recognized that and argued:

The way in which revenue and expenditure are grouped together for decision making is the most important aspect of budgeting...Classification is the structural key to conscious and rational government budgeting. The manner in which the revenue and expenditure are grouped will be determined by, and also will determine, the character of the decisions that can be made in the budgetary process. These decisions result from a constant interplay of questions and answers among levels in the hierarchy of government. The purpose of budget classification is to help focus the questions and to clarify and detail the answers.

The problem of classification is complicated by the fact that there are different purposes a budget classification may serve. Burkhead recognized that the search for an ideal single classification for the budget is “a mistaken and fruitless search”. Instead he argues the usefulness of the classification techniques can be judged only in relation to their operational character, the ability to facilitate the decision-making that characterizes and comprises the various phases of the budget process. He notes that those decisions determine the role, scope, and complexity of governmental operations, and the activities, which must be classified and budgeted.

⁵ The different purposes a budgetary classification may serve are elaborated in later paragraphs.

Similarly, Mosher (1954, pp. 5, 83) noted the importance of classification, because:

There are ... a variety of ways to translate information...The ways in which it is done importantly affect the kinds of treatment and kinds of decisions that can be made at various levels...The way we classify things obviously reflects our view of the nature of things; it also conditions our subsequent perspectives, understandings, and decisions made within the framework of the established classification.

Additionally, Schick (1978, p. 63) touches on a more specific case of planning, programming and budgeting (PPB) and notes that:

The PPB rests on assumption that the form in which information is classified and used governs the actions of budget makers, and conversely, that alterations in form will produce desired changes in behavior.

While these authors just expressed their “conviction” that budget structure matters, Grizzle (1986, pp. 60-70) and Pettijohn and Grizzle (1997, pp. 26-45) carried out some actual research to see the impact of the budget format on the nature of decisions made. They studied the appropriation committees of Florida and North Carolina using different budget formats and reanalyzed an earlier study on the U.S. House Appropriations subcommittee hearings. They concluded that although the format is not the only factor that influences decisions, it still influences “what the conversation will be about”. This is because whoever controls the budget format sets the decision agenda and controls the nature of the debate. Although the research area of these budget researchers was focused on the highest levels of budgetary decision-making, the Congress (of the U.S. or of different states), there is no reason to believe that the format would have no impact on the other levels on decision making, e.g. such as the Department of Defense or in the case of Estonia, the Ministry of Defense (MoD). The budget format and its

adequacy for decision making in the Estonian Ministry of Defense is the focus of this thesis. This issue is discussed further in the next paragraphs.

Now, given that structure matters, what are the characteristics of a useful budget structure for making rational decisions? Anshen (1969, pp. 10-11) gives seven useful criteria:

The budget design should facilitate meaningful measurement of the total money costs of accomplishing defined objectives. In the military budget, for example, this would mean a statement of the full costs of a proposed new missile system: research and development, investment and operation...

The budget structure should facilitate the comparison of alternative ways to accomplish a given objective. A military example might be the comparison of a full time-based costs of a submarine-based missile system with a comparable cost display for a land-based missile...

The budget presentation should clearly identify the future cost implications inherent in near-term financial commitments...

The budget design should facilitate comparison of cost inputs and achievement outputs when related segments of a single program are administered by different management units. An example might be hospital services under the direction of the Veterans Administration versus hospital services under another jurisdiction...

The budget design should delineate the objectives of discrete spending commitments in such terms that significant cost-effectiveness (cost-utility) analysis can be carried out. There are obvious limitations on our ability to define measurable goals, or even measurable progress toward such goals...Nevertheless, the budget design should seek continually to expand the area of informed analysis...

The budget design should make it possible to aggregate related expenditures whenever they occur in the government's sprawling administrative structure...

A budget that effectively meets the foregoing criteria should go far toward serving another important need – that of generating economic data on federal inputs to the national economy by meaningful activity segments.

This ends the discussion of the importance of budget structures. The remainder of this chapter gives an overview about the most important budgetary approaches and gives structural examples for most of them.

C. TRADITIONAL INCREMENTAL BUDGETING AND ZERO-BASED BUDGETING

1. Traditional Incremental Budgeting

The traditional incremental budgeting does not analyze all planned expenditures with the same intensity. The changes from previous year's expenditures in the proposed budget for the next year which is usually increments, hence the name incremental budgeting but of course, decrements from previous years are also possible, receive the most attention. The expenditures that were already present in last year's budget will not be thoroughly analyzed.

According to Wildawsky and Caiden (1997, pp. 45-49) the concept of a *base* is central to incremental budgeting. The base is the general expectation that programs will be carried out on or close to the current level of expenditures. The budget for the next year is thus largely determined by the budget of the last year. For that reason, it is very important for an agency seeking a long-term increase in its budget to achieve the inclusion of a new project in its base, as this will then be considered as an accepted part of what will be done. The authors compare the budget with an iceberg from which the largest part of it lies below the surface outside of anybody's control. The rationale for the lack of thorough annual review is that because last year's expenditures were already justified, recurring expenditures do not need annual review given the relative stability in the overall environment of the agency. This approach also assumes that the analysts, decision-makers and budgeters do not enough time and mental energy to analyze and

justify *all* planned expenditures every year. By leaving large portions of the budget out of a thorough annual analysis, incremental budgeting demands less time and energy than budgeting by comprehensive analysis. Another reason is the number of long-term commitments in the budget: mandatory programs (entitlements), such as veteran's pensions, cannot simply be eliminated at will. These commitments are legally binding and must be met regardless of circumstances. Therefore, they do not need annual revision. After these long-term commitments have been paid for, there is often only a small percentage of the budget left for anybody's discretion.

Another linked concept is the idea of "fair share". It means not only the established base, but also the (common) expectation that an agency should receive a proportion of funds as compared to others, that must be increased or decreased over the base depending on circumstances. In any case history plays a big role, because it largely determines the base and the fair share of an agency.

The advantage of incremental budgeting is that it simplifies calculations and decision-making, because only changes from the previous year must be considered and negotiated, thus saving considerable time and energy and decreasing conflict over expenditures, because the last year's share of the budget becomes the base and does not need thorough annual re-justification.

The disadvantage of incremental budgeting is that past expenditures may not necessarily justify their continuation in the changing conditions of the future. This means a waste of the resources. The next budgeting approach – the ZBB - tries to address this problem.

2. Zero-Based Budgeting (ZBB)

Hyde and Shafritz (1978, pp. 218-219) note that zero-based budgeting refers to the budgeting process that is first and foremost a rejection of the incremental decision-making model of budgeting. It demands a rejustification of the entire budget submission. It focuses on the concept of priorities, which is more than an elaboration of alternatives. It reflects a concern that the governments should do things that are the most important of all of the things they could do.

In other words, the ZBB states that *all* programs and expenditures must be reviewed *every* year, the mere fact that a program or expenditure was there last year provides no justification that it should be continued in the next year. Premchand (1983, pp. 334-335) refers to (probably) the first experiment with ZBB in the Department of Agriculture in 1962 that tried to fully implement the concept. The practical experience, however, revealed some problems. The approach required excessive paperwork and brought little or no change in the size or direction of the budget. As a result, the experience in 1962 failed. However, the ZBB was used in the federal level from 1977-1981. This time the concept was more elaborate. Premchand also gives the major features of ZBB:

Examination of programs at various levels of resource allocation and performance...

Objectives have to be formulated for each agency

The activities of each agency are converted into decision packages, which are developed to show performance at various resource levels such as “minimum”, “intermediate”, “current”, and “enhancement” levels, and

The decision packages are then evaluated and arranged at each level of management in ranking order

The ranking order enables the agencies to define the minimum effort and indicate the incremental levels of effort above the minimum of each program. Those levels are then ranked in a decreasing order and a cutoff point is established below which the items were not funded.

Wildawsky and Caiden (1997, p. 270) see ZBB as manifesting vertical comprehensiveness in contrast to horizontal comprehensiveness of PPB⁶: Every year alternative expenditure levels from base zero are considered. PPB compares programs, while ZBB compares alternative funding levels of the same program.

MacManus (1998, pp. 257-260) refers to both advantages and disadvantages of the ZBB. The proponents like its attack on incrementalism, low-priority programs and its efforts to force government officials to engage in a more rational analysis of alternative service delivery mechanisms and levels. They also like the bottom-up rather than program budgeting top-down approach.

The opponents of ZBB complain about the amount of time and resources it takes. They argue that the amount of paperwork needed for a single program's decision packages makes it improbable that all decision packages can be thoroughly analyzed and ranked by the policymakers. They also note that ZBB does not consider that fact that certain programs are very unlikely to be eliminated while others have little or no chance of getting funded.

There is also a lot of discussion about whether past knowledge and history should be eliminated in decision-making. Wildawsky and Caiden (1997, p. 271) are quite skeptical about eliminating the past in ZBB. They wrote:

⁶ The PPB (Planning, Programming and Budgeting) or more generally, program budgeting is discussed in further sections.

To say that a budgetary process is ahistorical is to conclude that the sources of error multiply while the chances of correcting mistake decrease: If history is abolished, nothing is ever settled. Old quarrels resurface as new conflicts...As mistrust grows with conflict, willingness to admit (and hence to correct) the error diminishes. Doing without the history is a little like abolishing memory – momentarily convenient, perhaps, but ultimately embarrassing.

They also noted that the ZBB did not exist in its pure form in any place. When 80-90% of the budget becomes the base and only the rest is annually reviewed that is very close to incremental budgeting. An example of a zero-based budget format is given in Appendix A.

The difficulties and limitations of ZBB have resulted in creating a hybrid or target-based-budgeting.

3. Target-Based Budgeting (TBB)

MacManus (1998, pp. 257-260) refers to this type of budgeting as incorporating the most attractive elements of the ZBB or the ranking of funding alternatives, and using cost-benefit estimates for different budget parameters. TBB recognizes that certain programs are likely to be funded in most cases and therefore do not need much annual scrutiny. Under TBB each organizational unit will be asked to develop two requests. The first is activities for the target budget (funding level pre-established by the budget office). The second is the others that will be funded given additional resources. All items of the “wish-list” are ranked in terms of priority.

The advantage of TBB is reduced paperwork, because not all programs must be presented in terms of decision packages. Since the target-base can easily be shifted, this increases its responsiveness to changing conditions and increases the ability of program managers to use their judgment in resource allocation.

However, the flexibility of TBB can also be its disadvantage as it allows irresponsible managers to include their pet projects into the base to protect them from review.

The incremental budgeting and ZBB are the basic budgeting approaches. The other budgeting types, line item budgeting, performance budgeting and program/mission budgeting, consider resource allocation incrementally, from base zero or use a combination of these two approaches. These other types of budgeting will be described in the following pages.

D. LINE-ITEM BUDGETING

The line-item budget concentrates on objects of expenditures, i.e., the items that are purchased rather than the purposes for which they are bought. They are presented to the government as a whole and also to individual agencies and organizations. This has historically been the most common budget format. The most important skills with this type of budget were those of accountants. According to MacManus (1998, p. 253) this budget type is the oldest devised in the twentieth century. The examples of classes of expenditures include personal services, supplies, travel and utilities. These classes can further be broken down into sub-classes. For example personnel services can be broken down into salaries, wages, overtime and fringe benefits. Giving separate codes to individual accounts in the budget allows further classification. An example of a line-item budget is given in Appendix B.

The line-item budget format and incremental budgeting go hand-in-hand. Although incremental budgeting does not necessarily always use the line-item format, when the line-item format is used as the principal budget format, its accounts are most

often analyzed and justified incrementally. Schick (1978, pp. 49-53) notes that the line-item budget is well suited for the first of the three major functions of budgeting: control⁷. The control orientation deals with a relatively narrow range of objectives. Examples include holding agencies to established expenditure ceilings, ensuring propriety of expenditure, and limiting certain types of spending and purchases. This type of budget format was inevitable in times when personnel were unreliable.

MacManus (1998, p. 253) refers to advantages and disadvantages of line-item budgets. The biggest advantage of the line-item format is its simplicity. It is easy to understand and use, especially when the information is presented by organizational units such as departments or divisions, or freestanding projects. The format promotes year-to-year comparisons, especially in terms of percentages. Wildawsky (1978, pp. 501, 502, 508)⁸ argues that this format is the superior budget format. This is because budgeting has several functions. It has to contribute to continuity (for planning), to change (for policy evaluation), to flexibility (for the economy) and to provide rigidity (for limited spending). There has been much criticism against inadequate budget structures because of these contradictory goals, but he is convinced that just because of these multiple goals the traditional budgeting is inferior for most purposes, but yet superior over all. Wildawsky further notes that organizing the budget around activities or functions instead of purposes has the advantage that changing objectives would not threaten organizational survival, because changing objectives would not automatically mean the elimination of the agencies, whose sole purpose was to contribute to those objectives. Exactly because the

⁷ According to him, there are three basic functions of a budget: control, management and planning.

⁸ He considers the line-item budget format as traditional for incremental budgeting. Therefore his views about line item budgeting also apply to incremental budgeting.

line items are neutral in regard to policy, this budget format is compatible with a number of policies unlike the Planning-Programming-Budgeting (PPB) and ZBB that means it is more flexible and more likely to last.

However, MacManus (1998, p. 253) points out that the problem with line item budgeting is that it focuses on inputs that have little connection with outputs/outcomes. This format makes it very difficult to reach any conclusions about effectiveness, efficiency⁹ or equity in spending and cannot hold the government accountable for how it operates.

These shortcomings of the line item budgeting have caused the emergence of other types of budgeting, especially performance and program/mission budgeting and ZBB. The description of ZBB was already given above. The remaining major budgeting types will be described next.

E. PERFORMANCE BUDGETING

1. Classification Problems

Before turning to this topic, a general comment is necessary. The exact conceptual differences between performance budgeting and program budgeting and their exact definitions are elusive. Several authors like Mosher (1954, p. 79), Hyde and Shafritz (1978, pp. 78-79) and Premchand (1983, pp. 323-325) have noticed that or have treated these terms as synonyms. A reader of budgetary literature should be careful to make sure what a particular author means while using these terms.

⁹ Generally speaking, there is a difference between effectiveness - getting the most out of the resources by choosing the right goals for spending - and efficiency with which these chosen goals are carried out. However, it is advisable to make sure that different authors use these terms in this sense before making any firm conclusions.

2. The Essence of Performance Budgeting

Because of conceptual confusion, it is not clear when performance budgeting started. MacManus (1998, p. 260) mentions several options ranging from the 1910s to 1949 when the Hoover Commission issued its report regarding the deficiencies of traditional control- and accounting-oriented budgeting.

Hyde and Shafritz (1978, pp. 78-79) propose a general definition of performance budgeting and contrast it to program budgeting:

Performance budgeting presents purpose and objectives for which funds are being allocated, examines costs of programs and activities established to meet these objectives, and identifies and analyses quantitative data measuring work performed and accomplishments...In performance budgeting, programs are linked to the various higher levels of an organization and serve as labels that encompass and structure the subordinate performance units...Overall the performance budgeting tends to be retrospective – focusing on previous accomplishments – while program budgeting tends to be forward looking – involving policy planning and forecasts.

This definition is consistent with Schick's (1978, pp. 54-59) theory of three functions of budgeting: control, management and planning. According to this theory, performance budgeting would be most suitable for the second –management - orientation of the budgeting. It would facilitate the efficient performance of fixed prescribed activities. Its focus is on the details. In performance budgeting, the work and activities are treated as an ends in themselves. Unlike in program budgeting, the work and activities relate to the functions and work of a concrete operating unit. Therefore their classification is usually done along organizational lines. Thus, this classification is most useful for an administrator or manager who has to organize the daily operations of an organization.

MacManus (1998, p. 260) describes the basic steps in performance budgeting that could be summarized with the following:

- Formulating goals and objectives for various activities or services provided by each department or organizational unit,
- Developing performance measures that are valid indicators by which to gauge whether goals and objectives have been met, and
- Linking cost and output and permitting an evaluation of the efficiency and effectiveness of the performance and the development of management responses.

The typical performance budget format incorporates elements of both line item and program budgeting formats. An example of a performance budgeting format is given in Appendix C.

As example of how performance budgeting represents a new way of thinking, Mosher (1954, p. 81) provides the example of military training. Under this type of budgeting, funds needed for basic training would be estimated on the basis of the total numbers to be trained and the overall costs of training each man rather than assuming the training goal and adding up the salary, supply and other costs to reach that goal. Under this system, Congress would control the number trained, the quality of training, and the total cost per man rather than the number and salaries of filled positions.

MacManus (1998, p. 260) further summarizes the advantages and disadvantages of performance budgeting. The proponents maintain that the inclusion of performance data into the budget promotes efficiency, effectiveness and accountability and thus improves management.

The opponents complain that the performance objectives are often arbitrary and selected only because “good” data already exists. Another problem is that the

performance objectives are not comparable across organizations, thus eliminating the possibility of comparing their performance. A third problem is overreliance on quantitative indicators at the cost of quality.

F. PROGRAM BUDGETING AND PPBS

1. Classification Problems

The problems in distinguishing program budgeting from performance budgeting were already mentioned under the description of performance budgeting. There are further problems distinguishing program budgeting from planning, programming and budgeting systems (PPBS or simply PPB). Lee and Johnston (1983, pp. 81-82) notice that PPB was used to refer to the DoD budget system developed in the 1960s, while program budgeting was used to refer to failed reforms of the budget systems in areas other than defense when the DoD system was not directly copied¹⁰. Sometimes PPB was simply used to refer to a variety of budget reforms of the 1960s that were never fully implemented or were abandoned in the 1970s. The authors conclude that the term PPB has a negative connotation when referring to failures of budget reform. At the same time they argue that:

The term “Program budgeting”... is used to refer to budget systems that, like PPB, link data about the results of governmental activities with their cost but that avoid some of the cumbersome processes that were part of the PPB systems. Today most people tend to use “PPB” in an historical context and use “program budgeting” as a more general term; PPB can be thought of as one version of program budgeting.

¹⁰ DoD still uses its PPBS, while it was abandoned in most other spheres of government. Jones and Bixler (1992, p. 20) offer several explanations for that outcome: the PPBS may have succeeded in DoD because it was specifically developed for defense, where many program and budget decisions were made on the basis of assessing alternatives and where quantitative data were available and amenable to the cost-effectiveness analysis and other analytical methodologies. Alternatively, they suggest that the PPBS survived because it was too costly to change to another system or because of reasons related to political competition between the OSD and the service branches.

However, because the two systems use essentially the same concepts of structuring the budget systems, they tend to use these terms interchangeably¹¹. Leaving these terminological problems aside, the next pages give the description of program budgeting in general and then turn to more specific DoD PPB systems.

2. Program Budgeting

It seems that the essence of program budgeting can best be explained by contrasting it with the other types of budgeting. Using Schick's (1978) classification mentioned above, the program budgeting assumes the primacy of the third function a budget can have or the planning function. In the context of budgeting, planning means the determination of objectives, the evaluating of alternative courses of action and the authorization of selected programs. A planning orientation focuses on the broadest range of issues. These are governmental policies and their link to particular expenditure choices, how programs should be assessed and the criteria on the basis of which they should be created or terminated. Unlike in performance budgeting where the objective is fixed, the objective itself is a variable in program budgeting. The analysis of existing programs may lead to a statement of new objectives and a termination of old ones. Program budgeting focuses on expenditure aggregates, the details matter only when they contribute to the analysis of the total. Whereas performance budgeting used the tools of scientific management and cost accounting, program budgeting uses techniques from systems analysis and economics. In performance budgeting, the focus is on fulfilling the given objectives at least cost. In program budgeting, the focus is on allocating resources

¹¹ This will also be the approach in later chapters of this thesis.

among competing claims and the budget is considered as a policy statement¹². Because program budgeting focuses on the end products or the missions and purposes of the government, its budget programs often cut across the organizational lines, because a single organization may contribute to several missions of the government. This type of information is not very useful to managers who are responsible for managing their particular organizations, but rather to top-level decision-makers who must make decisions covering the whole spectrum of organizations and allocate resources among competing claims from different organizations. Another difference between those two types of budgeting is that the performance budget is concerned with the *process of work* (how should it be done), while the program budgeting deals with the *purpose* of work (what should be done).

Lee and Johnston (1983, pp. 93-94) note that program budgeting in defense is based upon the limited rationality model described at the beginning of the chapter. They also note that contrary to many misconceptions, program budgeting does not make decisions. It only supplies information to decision-makers.

Schick (1978) gives also the differences between program budgeting and traditional budgeting. In traditional budgeting the existing base and the incremental changes from it have a central position. In contrast, program budgeting determines a broad goal and tries to find a way to achieve it, whereas the path is not incremental¹³.

¹² Novick (1973, p. vii) offers yet another distinction between performance budgeting and program budgeting. He states that the philosophy of program budgeting is that more resources are wasted doing the wrong things efficiently than can ever be wasted doing the right things inefficiently. For him, performance budgeting and MBO (Management by Objectives, a related concept) were concerned with efficiency; the program budgeting was a “decision making system” aiming at “big choices”.

¹³ The issue is not so clear in all cases, however. For example, MacManus (1998, p. 257) refers to program budgeting as facilitating incrementalism, as funds may be allocated incrementally among different

Another distinction is that traditional budgeting is relatively decentralized and done in a bottom-up mode. In contrast, the program budgeting tends to lead to centralized top-down policy making.

Wildawsky and Caiden (1997, p. 270) give the distinction between program budgeting and ZBB. While ZBB promotes vertical comprehensiveness, the same programs are analyzed at different funding levels. Program budgeting promotes horizontal comprehensiveness when comparing different programs.

MacManus (1998, p. 253) gives a description of establishing a program budget format. This includes: a) determining a broad goal or objective and labeling it as a program; b) breaking the program down into subprogram elements and activities (outcomes), c) reporting staffing and funding levels for each program, subprogram and activity. This topic will be observed in greater depth in later parts of the chapter. In general, program budgets like line item budgets tend to favor incremental budgeting. An example of a program budget format is given in Appendix D.

There is a considerable amount of discussion concerning the advantages and disadvantages of program budgeting. MacManus (1998, p. 260) refers to both schools. She notes that the proponents of program budgeting stress its emphasis on long-term planning and efficiency (the best way to achieve the desired outcomes).

The critics complain about the somewhat arbitrary assignment of expenditures to various programs and about the difficulty of tracking those expenditures without a crosswalk (a document specifying the codes of accounts that are included to a particular

programs almost as easily as among different line items.

program). This leads Wildawsky (1969, pp. 189-202) to conclude that no one knows how to do program budgeting because it is impossible to state it in operational terms. Another problem is that because the structure of a program budget tends to change when the objectives change, it is difficult to make long-term comparisons of budgets. A third problem is that genuine cost-benefit analysis is often impossible because of the lack of data, time and agreement on how to measure costs and benefits.

One of the most prominent critics of program budgeting, Wildawsky (1978, pp. 501-509), mentions a fourth problem with program budgeting. He argues that although the PPB budget structure facilitates the recognition of errors in the budget, the budget structure makes it hard to correct it. This is because a program budget has many interrelated elements and a change in one element will cause changes in many other elements as well, and doing these corrections is time-consuming. He concludes that in program budgeting there are essentially only two options for correcting errors: revolution or resignation, which are not very useful in most cases.

Mosher (1954, p. 81) also notes that program budgeting is extremely difficult budgeting, because it does not eliminate previous work with line-item budgets, but is an addition to that. Although he did not mean this as a critique, this is an issue that must be taken into account as this surely increases the costs of implementing program budgets.

In the next paragraphs, attention is turned to the best-known example of program budgeting, the PPBS.

3. Planning, Programming and Budgeting System (PPBS)

In very general terms, the PPBS begins with determining national interests and threats to those interests. A strategy is then developed to encounter the threats and defend

the interests. Then the programs are developed to fulfill the broad goals or missions of the strategy. The programs are structured in a manner that facilitates resource allocation between and within them. The budget is just the expression of the programs in financial terms as used by the legislature. Programming is thus the link that unites plans with budgets. Contrary to misconceptions, the goal of the PPBS is not to make decisions, but just packaging information for top-level decision-makers in the manner that they could make informed decisions.

Similarly, Kaufmann (1964, p. 173) notes that PPB is the device for centralized planning through which the national security objectives are related to strategy, strategy to forces, forces to resources and resources to costs.

Premchand (1983, pp. 325-326) and others note that PPB or program budgeting was first established in the U.S. Department of Defense. Then it had three principal features:

A system of classification in which programs were related to a major objective of policy, were capable of being classified into a number of elements that could be substituted for each other and that lent themselves to a preferred mix, and that cut across service lines and allowed coordination among them.

A program analysis allowing effective and efficient ways for reaching the goal¹⁴

An annual budget cycle in which classification and program analysis became integral parts. The DoD system was later extended throughout the U.S. Federal Government in 1965, but was terminated again in the 1970s. DoD still continues to use PPBS.

¹⁴ In general, effectiveness means getting most out of the given resources, while the objective itself is variable. The efficiency means achieving a given goal for least cost. However it is always good to check the meaning in different books as different authors may use these words in a different sense.

Hyde and Shafritz (1978, pp. 120-121) and others note that PPBS began by claiming that it could interrelate and coordinate planning, programming and budgeting. Planning would be related to programs that would be keyed to budgeting. The PPBS pushed the time horizon out to half a decade, requiring five-year forecasts for program plans and cost estimates. PPBS placed a new emphasis on program objectives, outputs and cost estimates. The authors also refer to R. McNamara who was one of the major proponents of PPBS:

When he was nominated Secretary of Defense, he did not like what he saw in DoD. The plans were formulated without considering costs, alternatives were not considered and each of the services submitted their own budget with their own priorities. Therefore he was interested in having a planning and program budget that would allow him to make budgetary decisions of real consequence.

Hitch (1996, p. 258), one of the “founding fathers” of PPBS describes the system as comprising two main components:

Programming – to provide a link between military planning and annual budgeting;

Systems analysis (or cost-effectiveness analysis) – to assist in making some of the hard choices on what goes into the program.

These aspects will be discussed in greater detail in the next chapter.

Jones and Bixler (1992, p. 20), referring to an article of L. Korb note that although the manner in which the system operates has varied, the basic characteristics have remained the same. The three stages of PPBS will be described next. The description relies on Jones and Bixler (1992, pp. 19-31).

a. Planning

The planning phase begins with determining the goals and missions of DoD. The policy direction comes not only within the PPBS framework, but also from the President, State Department and other executive branch agencies as well as Congress. The international commitments and treaties may also influence the determination of goals and missions. The Joint Chiefs of Staff, OSD and the services then separately define assessments of threats and resource estimates to meet the threats and commitments with acceptable risk levels. These independent evaluations are then combined by the OSD to produce the Defense Planning Guidance (DPG). The document annually indicates the assets, forces and other resources needed to satisfy the national security objectives. It covers threats and opportunities, policy, strategy, force planning, resource planning and fiscal guidance, and includes a summary of major policy issues. This document provides the basis for service-branch and OSD programming and budgeting.

Policy and resource planning is accomplished within the framework of the PPBS program structure. This comprises 11 programs: support of other nations, strategic forces, general purpose forces, intelligence and communications, airlift and sealift, guard and reserve forces, R&D, central supply and maintenance, training and personnel, administration and special operation forces. The programs are crosswalked to the appropriation format used by the Congress or to some other formats, for example, used by services and commands. The policy and programmatic planning take a long-term perspective of 10-20 years and beyond, while programming and budgeting take a six-year perspective. However in practice the programming and budgeting focus on a two-year period and much of the budget is decided upon annually, although the six-year

projections are prepared for programming and budgeting. Planning within PPBS is only marginally resource constrained. It articulates the amount of resources needed to minimize the threat independent of resource constraints so that the choices among alternative force structures and threat responses may be made knowledgeably during the programming and budgeting phases.

b. Programming

This phase is guided by the Future Year Defense Program (FYDP) which aggregates and translates the program elements (PEs) that are the basic building blocks on projected asset requirements into the force programming framework of PPBS. It comprises six years and provides a summary of requirements and alternatives for achieving force structure, readiness, sustainability and modernization objectives.

The task of programming is to articulate and prioritize a six-year defense resource demand into the perspective of a moving two-year cycle. Programming is intended to integrate the capabilities of all the individual components of each service branch into coherent packages. While programming by the military departments is a complex process that differs between service branches, it generally comprises three phases: program planning and appraisal, program development, and program decision and appeals. Programming is considerably more cost-constrained than planning but still places the greatest emphasis on the technical capability relative to peacekeeping and war-fighting demands.

c. Budgeting

This phase is primarily an effort to allocate resources across and within the military departments according to planning and programming decisions. Budget

formulation requires the issuance of preparation guidelines, the collection of programmatic and cost data, the provision for opportunities to program justification into hearings, the analysis of proposals for adherence to both financial and policy guidelines, and the negotiation of program priorities within the constraints of the budget authority projected to be available in the next two fiscal years and four out-years under the biennial budget process. It also attempts to respond to short-term contingencies resulting from changes in the international environment and the new policy initiatives flowing from Congress, the President, and the Secretary of Defense.

Budgeting is a highly constrained exercise in pricing the executability of programs within the parameters of affordability and political feasibility. Coordination and reconciliation of the multitudinous budgetary perspectives of the military departments, Joint Chiefs of Staff and others, and is the task of the OSD staff.

The defense plan and budget are prepared by the OSD, the military departments, and uniformed services on a programmatic basis with requests to Congress divided into the 11 programs noted previously. This program structure is crosswalked into appropriations, functions, subfunctions, object-of-expenditures, and other budget formats by DoD for presentation to a review by Congress. Although DoD prepares the program budget, Congress does not review or enact the budget on the DoD programmatic base. Instead, the six major committees employ separate authorization and appropriation processes for policy, program, and budget decision-making. Congress reviews, negotiates, and executes much of DoD's budget proposal on a project and object-of-expenditure basis.

Due to the importance of programming for rational decision making, the structural and analytical aspects of programming will be discussed in greater depth in the next chapter. There is one more type of budgeting that should be mentioned which is mission budgeting. It will be described in the following section.

G. MISSIONS AND MISSION BUDGETING

There is considerably confusion about what a mission is. The DoD defines a mission as:

The task, together with the purpose, that clearly indicates the action to be taken and the reason therefor¹⁵

The NATO definition is similar:

A clear, concise statement of the task of the command and its purpose¹⁶.

However these definitions are so general that they allow a wide range of interpretations. In general usage, a mission could thus be synonymous with task, objective or purpose. Both the military forces and the civilian sector of the government have missions. The military strategy gives major missions to the forces. However, these missions are general in nature. There could also be other, more detailed missions. The broad missions can be taken from the strategy, but at the same time, even the smallest military unit must have a clear purpose, a mission or missions.

Similarly to many other types of budgeting and budgets, the term mission budgeting can have different meanings. In a general sense, program budgeting could also be described as mission budgeting as long as it focuses on the missions and purposes of the government, and develops different programs for different missions. However, a

¹⁵ Joint Pub 1-02, DoD Dictionary of Military and Associated Terms, 23 March 1994.

¹⁶ NATO Glossary of Terms and Definitions, 7 August 2000 (AAP-6 (V)).

number of people argue that although this is what program budgeting is supposed to be, this is not case in reality. For example, several of the 11 programs the DoD currently uses in its PPBS cannot be the purpose or end-missions of defense, but rather a means or way to achieve those missions. Wildawsky (1978, p. 184) argues that only two of the nine DoD program categories are genuine programs in the sense of pointing to end purposes or objectives¹⁷. In particular, he refers to strategic retaliation and continental defense, which he considers together and the program of general purpose forces that is meant for a limited war anywhere in the world. He argues that the other programs only support these two missions: airlift and sealift support, general purpose forces and R&D and reserve forces are supposed to support other defense objectives. Davis (1999) is also critical about the way the current programs are structured and argues that using the same programs today would suggest that there has not been a significant change in the strategic environment for 37 years, which ignores the reality of the post-Cold War environment. Additionally, he argues that the five-year defense program has merely become an accounting tool that plays no role in making real decisions¹⁸.

Going further, Wildawsky and Caiden (1997, p. 222) refer to several studies that stress the necessity of having organization framework procedures that support budgeting for missions and argue that DoD itself is not structured along combat mission lines. Jones

¹⁷ The general number of DoD programs has apparently changed over time, as in the 1990s there were 11 programs.

¹⁸ He proposes to structure the major force programs around the following issues: shaping the international environment through presence and engagement around the globe, responding to regional crises and preparing for the demands of an uncertain future by pursuing a modernization program that captures the tenets of the revolution in military affairs and new operational concepts.

His critique is the more relevant, because he was an insider. He retired as the Army Chief of Staff's chief of program development in 1997. However, his critique does not reject the programming concept as such, but the lack of its update. If the programs are not structured along relevant missions, then the programming cannot fulfill its promises.

and Bixler (1992, chap. 9), Thompson and Jones (1994) and Thompson (1991) represent the same argument by submitting several reform proposals, which they call mission budgeting. The proposals are comprehensive and affect not only the current budgeting procedures and classifications, but require a far-reaching reform of the whole Defense Department. They will be described next.

Their central idea about organizational structure is comprised of two rules. First, strategy should determine the structure. Single mission organizations should be organized along functional lines; while multimission organizations should be organized along mission lines; and multimission, multifunction organizations should be organized along matrix lines¹⁹. The second rule is decentralization whenever possible. It means prior classification of the purpose or function of each administrative unit and responsibility center, procedures for setting objectives and for monitoring and rewarding performance and a control structure that links each responsibility center to the goals of the organization as a whole. Jones and Bixler define decentralization as the usage of *ex post* controls (as opposed to *ex ante* controls of centralization), but it does not include eliminating central policy direction from the top, hierarchically established goals and centralized control procedures that are part of any well-managed organization.

19 The definitions are taken from Thompson (1991, pp. 52-53):

Strategy - pattern of purposes and policies that defines the organization and its missions and that positions it relative to its environment

Functions of top management in any organizations: planning, organizing, staffing and development

Structure- this may mean three different things:

1. Administrative structure - division of labor (seen in organization charts)

2. Responsibility structure - distribution of individual authority and responsibility within the organization. Jones and Bixler (1992, p. 209) define responsibility structure of DoD as those elements of the organization that carry out the primary mission of defending U.S. national security interests – the military commands

3. Account or control structure – system of measuring and evaluating performance.

The authors believe that the failure to think these structural relationships through produces a centralized organization that is rife with externalities in which everything depends upon everything else, i.e. decentralization is impossible there. They further maintain that this has happened in DoD, where management control, budgeting, and accounting structures do not correspond well either to its mission and responsibility structure or the organization structure as a whole and DoD has failed to clarify administrative boundaries, roles, mission responsibilities and to delegate authority accordingly. As a result they believe the current DoD organization is too centralized, bureaucratic and cumbersome, because whenever structural problems occurred, they were hoped to be solved by creating a new process, mechanism or unit on top of the old organization. Instead of supporting the responsibility or mission structure, the control structure appears to dominate in DoD.

To improve this situation, Thompson (1991) and Thompson and Jones (1994, chap. 8) propose to distinguish between mission²⁰ centers and support centers. A mission center, the US combatant command according to the contemporary military strategy, contributes directly to the organization's objectives whereas the task of support centers or uniformed services, is only to support mission center(s) in accomplishing their objectives by supplying combat and support units to the combatant commands. The costs of support centers should be charged to the mission center(s) they support. The DoD organizational structure should become a matrix, with the Joint Chiefs of Staff at the top, the combatant

²⁰ They found 10 missions: strategic nuclear retaliation, theater nuclear retaliation, conventional defense of a number of geographic areas throughout the world (central Europe, northern Europe, Greece and Turkey, the Persian Gulf states, the Republic of Korea, the Pacific and Indian Oceans, and continental U.S. plus Hawaii, Alaska, Panama, the Atlantic and the Caribbean) and intelligence and communications (p. 55).

commands or mission centers the rows, and the uniformed services or support centers the columns. The proposed new management control structure of DoD is given in Appendix E.

Under their vision, the budget guidance should be issued to the combatant commands, which are allowed to “buy” forces from the uniformed services. This quasi-commercialization should be kept only in peacetime, of course. Congress should issue budget authority directly to combatant commands rather than to the military services. The combatant commands would still need Congressional approval to make substantial changes in operations, activities, equipment and the undertaking major investments, but Congress should stop micromanaging line-items, although the line-items themselves would not disappear from the budget. A new feature would be giving permanent budget authority to commands in terms of discounted net cash flows. The accounting practices would also need reforming to bring the accounts in line with missions. In particular, they propose accrual accounting as essential for this type of budgeting by measuring the costs of items consumed, not of the items purchased, of course the reporting should be improved and changed to show the performance of mission centers, whereas the volume of reports should not increase.

Jones and Bixler (1992, chap. 9) propose an even more revolutionary version of this reform. The responsibility for operations and procurement would be placed at the command level. The military commands would not only be allowed to “buy” units from uniformed services as in the previous proposal, but they would also have the authority to make direct contracts with the private sector to procure military capital assets and sustain their operations in general. Under this system the financial role of policymakers would be

specifying in lump-sum terms how much should be spent for each national security objective by command and mission area rather than by separate appropriations to separate military departments. Their basic assumption is that the military commanders know best what they need for fulfilling the missions and their military judgment should be used. Of course, the commanders would still need guidance from both Congress and DoD, but they should be free to use resources in a manner that they think is appropriate. They do need to report back on their activities, but the reporting will concentrate on the extent to which the objectives were accomplished and not how they were met. The laws to prohibit fraud would remain unchanged, however.

It is not known what the mission budget proposed by Jones and Bixler (1992) and others would look like, as the authors did not focus on the budget format, but rather on the management control and financing in general. Their proposals have not been implemented so far, so there is no empirical evidence about mission budget formats. However, it is plausible to assume that if the organizational structure comes from the strategy, the general appearance of the mission budget structure could also resemble the matrix structure given in Appendix E.

H. CONCLUSION

To summarize, there are budgetary approaches that aim for incremental budgeting and approaches that aim for a more rational approach to budgeting, although an actual budget system may simultaneously use elements from different budget systems. The incremental line item budgeting does not support rationality because of the lack of comprehensive analysis and some other reasons. The other budgeting approaches such as the ZBB, performance budgeting and program budgeting aim towards more rational

decision making to a varying degree. The problem with performance budgeting and ZBB are that they generally neglect the longer than annual time frame needed for rational decisions. From the point of view of ministerial and high level military decision makers, performance budgeting puts too much stress on efficiency in particular administrative units rather than on “big choices”. Therefore, performance budgeting is not the rational approach at the Estonian MoD level, although it may be useful at lower levels in the chain of command for national defense. In this way, it seems that the mission-oriented program budgeting is the most suitable for rational decision making and planning in the Ministry of Defense and high-level military staffs, because it is specifically designed for top-level planning and decision making. Therefore, the structural and analytical aspects of PPBS programming, the true program budget, will be discussed in greater detail in the next chapter.

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III. TRANSLATING DEFENSE PLANS INTO BUDGETS: STRUCTURAL AND ANALYTICAL ASPECTS OF THE MILITARY PROGRAM BUDGET

A. THE CONCEPT OF PROGRAMMING

Hitch and McKean (1961, pp. 46-64) gave the basic philosophy behind a defense program budget. First they noted that there were two possible approaches for defense: budget first and need first. The budget-firsters believe that the size of the defense budget should be determined in the light of cost alone. The need-firsters believe that programs should be determined in the light of the needs alone. Hitch and McKean rejected both approaches and argued that:

The truth is, however, that one cannot properly draw up defense plans on the basis of either cost alone or needs alone. There is no budget size or cost that is correct regardless of the payoff, and there is no need that should be met regardless of cost.

Therefore they stressed the importance of getting the most out of the resources, not hunting for a right budget, requirement, or doctrine. As a result they regarded the questions "What can we afford for defense?" and "What are our needs?" as meaningless and argued that instead the right question to ask is: "How much is needed for defense more than is needed for other purposes?" Although the authors did not explicitly mention that, they used the same approach also for resource allocation between different defense missions, not just for allocating resources between defense and nondefense. For example, the right question within defense could be something like: How much is needed for carrying out a particular mission more than it is needed for other missions? To get an answer to the last question they proposed to think in terms of programs: a combination of

activities that produce distinguishable products, in particular programs that perform tasks and yield end products, rather than actions that yield objects or intermediate products. However, they noted that distinguishing between programs and objects is often not unambiguous and the level of aggregation of objects must be properly chosen. For example, they believed that allocating every military item and activity to national security programs would not be very meaningful. At the same time, they did not think that assessing the adequacy of the defense budget could be achieved by thinking about the gains from categories like paper clips or personnel. Therefore, they proposed to develop programs that would aggregate activities that produce certain end products such as capabilities for nuclear retaliation or limited war. For these kinds of categories, it is possible to make judgments about their worth and also their cost. Hitch and McKean also stressed the need for costing out the programs for several years ahead. Another crucial aspect for getting the most out of resources was the idea of presenting alternatives, both different funding levels for the same program and for different programs, for decision making. This was important because in this way additional costs for developing an additional military capability could be compared and this would facilitate informed decisions. They recommended using a force structure as the basis for the program structure, but they also stressed that a particular force structure should not be considered only in terms of costs and absolute military capabilities. The relative strength as compared to potential enemy forces could be another important factor. Although the planned force structure should form the basis for programs, the stress should not be on any particular force structure, but on developing alternative ways for carrying out the broad missions. Regarding the choices of programs, they noted that the jointly used

items, such as administration, could be considered as separate aggregate and joint costs could be allocated among programs according to crude rules of thumb.

It must be stressed that the classification of costs into meaningful programs is not the main goal of the programming. Instead, the goal is to structure information in the way that would facilitate analysis of alternative ways of achieving the military mission, calculate costs and on the basis of the above, to consider both costs and effectiveness of alternatives in making a decision. After finishing the program packaging, Hitch and McKean (1961, p. 58) recommended that the Administration and the Congress choose among explicit, meaningful programs in deciding on the size of the defense budget. The multiple program levels²¹ would then be advisable to the current blind additions or cuts from the budget and programs. This ends the description of the programming concept. The next section shows how the programming was carried out in practice.

B. PROGRAMMING AND ANALYSIS IN ACTION

The concept of programming that was described above was essentially implemented in the DoD PPBS system. Hitch (1996, p. 259) gives his actual experience with PPBS in the 1960s. He notes that before establishing PPBS each year, the Joint Chiefs produced a massive intermediate range plan and sent it to the Secretary of Defense. However, because this plan was financially unfeasible, the Secretary filed it after receiving it and that plan played almost no role in actual resource allocations during annual budgetary decisions. To improve the situation, DoD developed a five-year program budget, then called the Five-Year Force Structure and Financial Program or

²¹ This is a good example that Hitch and McKean (1961) did not exclude using ZBB elements together with program budgeting.

FYFSP, that provided the link between planning and budgeting. Hitch gives the most important aspects of this program budget as follows:

Its basic structural elements were those used by the military planners – army divisions, air force squadrons, naval ships, weapon systems etc.

Each element was fully costed out over a five year period – including all costs, capital and operating, regardless of budget category (we did not abandon the old budget structure - Congress preferred its familiar categories – but developed a converter to translate budget into programs and vice versa²².

The forces and weapons included in the FYFSP were not wish lists, but programs, which had been received and approved by the Secretary within fiscal constraints, which the Secretary considered feasible and reasonable. We were trying with some success to get the military planners to make hard choices instead of dreaming.

All elements of DoD were included, support and overhead as well as line, so that the total costs of all program elements constituted the required budget. Next year's fiscal budget became the first annual slice of the Five-Year Program budget.

To decide which program elements should go into the program, DoD applied a systems analysis by looking broadly at the costs and benefits of alternative plans, both measurable and nonmeasurable. According to Massey (1963, p. 32) the most important aspect of effectiveness measurement, for example benefits, is the requirement that it be traced back to basic national security objectives. Whether a weapon system has superior performance or enormous destruction capability is important only in this context. The test is how it scores on both a cost and effectiveness basis of comparison with alternative

²² The fact that Congress does not appropriate money on a programmatic basis is a serious problem for program budgeting. For example, Shehane (1994) demonstrates a potential problem vividly by noting that Congress may approve manpower in one appropriation and operations in another, and then deny the funding for equipment. As a result, the program manager has to implement an incomplete program. However, this limitation does not totally undermine the rationale for using a program budget internally, because if not used the military may have incomplete programs not only because Congress denies funding for some items, but because nobody has considered the total resource requirement for all programs in a given time-frame.

ways of performing the same task. From the beginning, not all major programs or program packages were organized around major military missions. Some programs were organized around a set of related purposes. Only the first four major programs: Strategic Retaliatory Forces, Continental Air and Missile Defense Forces, General Purpose Forces and Airlift and Sealift²³, contributed directly to national security objectives. The other major programs just supported the first four mission – oriented packages or are categories that could not be charged meaningfully against the other packages.

Novick (1969, pp. 87-99) adds that the program budget procedure has two goals. First, to permit analysis of total force structures for all the services in terms of common missions or national objectives and second, to protect the resource impact (future needs) of the proposed force structures over an extended period of years to ensure adequate funding in the future. To achieve the first goal, a program element like the Navy's Polaris missile system was identified as an element of a program (Strategic Retaliatory Forces) that had to compete for funding together with other elements of the same program, such as the Minuteman or Titan²⁴. To achieve the second goal, all development, procurement and operating expenses were identified over the expected life, or administratively specified period, of the system. He further notes that the five-year plan was a unified DoD plan rather than an aggregation of separate service plans. Another feature of the

²³ Smithies (1969, pp. 43-45) generally agrees with this classification, but he does not put Airlift and Sealift to the primary, but to supporting programs, because it supports the General Purpose Forces. He considers Airlift and Sealift as a separate program only because within its framework, airlift and sealift capabilities could compete with each other for achieving national security objectives. This shows again that there may not be an ideal program structure, as different people do not even agree on what the established program structure represents.

²⁴ In his terminology, the inclusion of an item to a program would not yet necessarily guarantee funding. He distinguishes between the program structure that should facilitate analysis and a separate five-year force structure and financial program that then includes only approved program elements and funding. This illustrates one more time that the program budgeting terminology is not always standardized.

five-year plan was that was updated monthly rather than once a year²⁵. To ensure that the most current information is in the plan, DoD developed a program proposal system that allowed the services to request changes to an existing program. Usually changes were made as a result of a major study about costs and effectiveness²⁶ of a particular program element.

Novick (1969, pp. 92-93) also gives an illustration of the major programs as they were used in the 1960s. They are given here in full detail:

Program I

Strategic Retaliatory Forces: the forces that are designed to carry out the long-range strategic mission and to carry the main burden of battle in general. They include the long-range bombers, the air-to-ground and decoy missiles, and the refueling tankers; the land-based and submarine-based strategic missiles; and the systems for their command and control

Program II

Continental Air and Missile Defense Forces: those weapon systems, warning and communication networks and ancillary equipment required to detect, identify, track, and destroy unfriendly forces approaching the North-American continent

Program III

General Purpose Forces: the forces relied upon to perform the entire range of combat operations short of general nuclear war. These include most of the Army's combat and combat support units, virtually all Navy units, all Marine Corps units, and the tactical units of the Air Force

Program IV

²⁵ This changed later as Jones and Bixler (1992, p. 23) note that the Future Years Defense Program (FYDP, the new name for the FYFSP) is updated three times a year.

²⁶ The effectiveness in his usage could be measured as the extent to which program element fulfilled the national security objectives. An example of effectiveness criteria could be population and floor space destroyed, expected number of targets destroyed (for strategic retaliatory forces) and tons of ordnance delivered, number of sorties, expected number of targets destroyed (for tactical attack air forces).

Airlift and Sealift Forces: those airlift and sealift forces required to move troops and cargo promptly to wherever they might be needed. Included in the airlift forces are both the MATS transports and the Air Force Tactical Air Command troop carrier aircraft. The sealift forces include the troop ships, cargo ships, and tankers operated by MSTS and the "Forward Floating Bases"

Program V

Reserve and National Guard Forces: equipment, training, and administration of the Reserve and National Guard personnel of the several services

Program VI

Research and Development: all research and development effort not directly identified with elements of other programs (i.e. where there has been no decision to produce for inventory)

Program VII

General Support: support activities of the several services and the agencies that serve the entire Department of Defense. It constitutes an "all-other" or residual category of activities or programs and includes all costs not capable of being directly or meaningfully allocated to the other major programs

Program VIII

Military Assistance: equipment, training, and related services provided for armed forces and friendly nations

Program IX

Civil Defense: federal assistance for fallout shelters, warning and radiological monitoring systems, training and education for emergency preparedness etc.

As an example of even more detailed classification, Novick (1969, p. 93) gives the program elements for Program I that should compete for funding within the same program:

Aircraft Forces²⁷

B/EB-47; RB-47; B-52; AGM-28A/B; GAM-87; B-58; KC-97; KC-135;
RC-135.

Missile Forces, Land Based

Atlas; Titan; Minuteman

Missile Forces, Sea Based

Polaris System; Regulus System

Command Control, Communications and Support

SAC Control System (465L); PACCS (KC-135/B-47); UHF Emergency Rocket Communication System; Base Operating Support; Advanced Flying and Missile Training; Headquarters and Command Support.

C. A CHALLENGE FOR PRACTICAL PROGRAMMING

There is a challenge a programmer has to overcome. Since all programs should equal the total defense budget, every resource and cost can be counted only once, although an equipment or unit may be used for different purposes. In other words, all programs must be collectively exhaustive and mutually exclusive²⁸. Mosher (1954, pp. 94-95) gives an illustration of this general problem. If, for example, medical care is classified as a primary purpose or program of the Navy Department, then all other programs that use medical services would be incomplete. The same problem arises when training is established as a separate program, but most of the funds are allocated under other “programs” like personnel, forces and facilities. This means that if the programs are structured along the administrative functional lines like personnel, training, construction,

²⁷ Of course, the acronyms do not just mean numbers of aircraft like B-52, but the entire military units like B-52 squadrons or forces necessary to make these aircraft operational.

²⁸ Of course, the same applies to budgeting in general. The sum of all budget accounts must be equal with the total budget, not more or less. However, because the traditional budget is organized around the inputs, many of the output-oriented classification problems do not arise.

or medical care, then developing an effective program structure that would be focused on the end products is often not possible at the same time. However, structuring programs along functional lines would greatly facilitate their administration, because each existing department of an agency would be responsible for “their” program. There is no “good” solution to that problem, if, for example, the same equipment and not just the same type, is used for two different programs, its costs must be either put to one program with the understanding that another program is undercharged or its costs must be allocated among those programs that benefit from its use.

The last part of the chapter discusses how well the programming or program budget satisfies the criteria for rational decision making given at the beginning of the Chapter II.

D. PROGRAMMING AND RATIONAL DECISION MAKING

Although the PPBS programming is far from being ideal for rational decision making, it facilitates better budgeting and decisions at the top levels of management than was possible under traditional budgeting. The programming satisfies most of the criteria for rational decision making that were given in Chapter II. They are investigated now in more detail in the next paragraphs. These criteria specified by Anshen (1969, pp. 10-11) are given one more time in the text and the assessment follows.

- The budget design should facilitate meaningful measurement of the total money costs of accomplishing defined objectives. In the military budget, for example, this would mean a statement of the full costs of a proposed new missile system: research and development, investment and operation.

Assessment: although the program budget does not necessarily allow assessing the total money costs in case they are incurred in the future after five years, taking the five-year time span into consideration is a big improvement as compared with annual budgets.

- The budget structure should facilitate the comparison of alternative ways to accomplish a given objective.
Assessment: this is possible in the program structure of a military program budget, because competing program elements are identified in each major force program and only the elements with the best cost-effectiveness ratios are chosen.
- The budget presentation should clearly identify the future cost implications inherent in near-term financial commitments.
Assessment: the military program budget satisfies this requirement, because all programs must be costed at least five years into the future as compared with annual budgeting.
- The budget design should facilitate comparison of cost inputs and achievement outputs when related segments of a single program are administered by different management units.
Assessment: The first part of this criterion is satisfied, because focusing on the outputs of the resource spending is one of the principal features of programming. Because the military units can be grouped together into a program regardless of their subordination the second part of the criterion is also satisfied.
- The budget design should delineate the objectives of discrete spending commitments in such terms that significant cost-effectiveness (cost-utility) analysis can be carried out.
Assessment: the analysis has a central role in military program budgeting. The extent to which a genuine cost-effectiveness analysis can be carried out depends on the concrete information packaging details and the ability of the decision makers to agree on how to measure and what is counted as costs and benefits. But generally, the facilitation of cost-effectiveness (or cost-benefits²⁹) analysis is one of the most important functions of programming.
- The budget design should make it possible to aggregate related expenditures whenever they occur in the government's sprawling administrative structure.
Assessment: this is possible to the extent allowed by the classification details. Limitations may arise similar to the challenge mentioned with medical care and training in the previous section. Therefore the extent to which it is possible depends on the nature of these related expenditures.

²⁹ Generally speaking, the difference between cost-effectiveness and cost-benefits analysis lies in the measurement of the spending results. The cost-effectiveness analysis measures the results (effectiveness) of spending the resources (costs) in quantitative (usually) or qualitative (less commonly) terms, but does not convert the effectiveness into monetary terms. The cost-benefit analysis assigns a monetary value to the perceived benefits.

- A budget that effectively meets the foregoing criteria should go far toward serving another important need – that of generating economic data on federal inputs to the national economy by meaningful activity segments.

Assessment: this criterion is not very relevant for the ministerial level of decision-making. What constitutes a meaningful activity segment for economists outside the defense is not specified, therefore no assessment can be given. However, because a program budget also retains the traditional budget format, it can give at least as good information to economists as the traditional format.

The theoretical part of the thesis is finished. The next chapter gives some background information about Estonian defense, its strategy, forces, goals and budgets.

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IV. BACKGROUND TO THE STUDY

A. THE MISSIONS OF THE ESTONIAN DEFENSE FORCES (EDF)

The Estonian Government adopted the Estonian military strategy on February 28th, 2001. This document will form the basis for the development of the military defense in coming years. Therefore, it is the central document guiding the allocation of resources. Generally, regardless of the country, military strategy gives missions to the forces. The missions then guide the identification of needed capabilities and force structures. Thus, the missions form an especially important part of the strategy. The Estonian military strategy gives missions to all services: the Army, Air Force, Navy, Defense League and Border Guard. The thesis examines only the services under the MoD sphere of administration. A brief description of the services is given later in this chapter.

In peacetime the main missions are:

Maintaining all units at designated readiness levels and be prepared to fulfill the peacetime functions

Guaranteeing military capability of the units and their interoperability with NATO forces

Preparing the units, population and territory of the state for military defense and for supporting international operations

Cooperating in the framework of NATO Partnership for Peace program and other defense-related agreements

Participating in providing assistance to the civilian authorities in coping with damage caused by natural or man-made disasters/catastrophes

In international crisis:

Intensifying surveillance of Estonian or adjacent airspace and control of Estonian airspace

Intensifying monitoring and control of the territorial waters of the state

Preparing for transfer to wartime command structure prepared in peacetime and begin partial or total mobilization, integrate the units from other ministries

Increasing readiness levels of designed units according to the situation

Preparing for the reception of, and cooperation with, external assistance and forces

In wartime:

Defending national territorial integrity as directed by the defense plan and by lawful authorities

Facilitating arrival and cooperation with forces from other countries, including holding control over sea lines to the extent possible and defend approaches to designated harbors and airfields

Maintaining in cooperation with forces from other countries control over national airspace and defend strategic objects to the extent possible

The strategy also identifies specific missions for individual services. In addition to the strategy, there is currently work progressing with the involvement of experts from the Center for Civil-Military Relations, Monterey, CA to fine-tune these missions for practical planning purposes. The current stage of the services' missions is presented next.

Missions of the Army:

1. Training and educating personnel according to established standards to include inculcating strong spirit to defend the nation
2. Conducting training for all units at designated readiness levels
3. Maintaining units at designated readiness levels
4. Providing designated forces for combined exercises and operations with NATO and other partners
5. Conducting coastal defense
6. Lending designated forces, as stated in legislation, to civilian authorities in natural disasters, civil unrest or man-made catastrophes

7. Transition to wartime command structure
8. Increasing readiness levels of designated units through intensifying training and exercising wartime tasks in case of crises
9. By direction of the Parliament/President, mobilizing designated forces according to plans and standards
10. Integrating the ground units of the Ministry of Internal Affairs in case of crises
11. Upon approval of the government, activating of host national support system for external forces
12. As directed by lawful authorities, providing ground forces to defend national territorial integrity
13. Conducting joint/combined operations
14. Maintaining essential interior lines of communications

The missions of the Navy:

1. Training and educating personnel to established standards to include inculcating a strong spirit to defend the nation
2. Conducting training for all units at designated readiness levels
3. Maintaining units at designated readiness levels
4. Providing designated forces for combined exercises and operations with NATO and other partners
5. Conducting maritime military surveillance
6. Providing designated forces for coastal defense
7. Conducting naval operations
8. Participating in the development of seaports that are interoperable with the standards of NATO and other partners
9. Providing designated forces for naval exercises and operations with NATO and other partners
10. Conducting maritime search and rescue operations (peacetime)
11. Leading and intensifying maritime surveillance (in transition to war)
12. Preparing for the defense of strategically important assets from the sea
13. Integrating designated maritime units from other ministries and civilian assets in times of crises
14. Transition to wartime command structure in case of crises

15. Increasing readiness levels of designated units through intensifying training and exercising wartime tasks in times of crises
16. During transition to war, and during wartime, conducting search and rescue
17. Supporting the operations of defense forces with naval assets
18. Upon approval of the government, activating the host nation support system for external forces
19. Sea denial around strategic locations in wartime
20. Securing sea lines of communication in territorial waters

The missions of the Air Force:

1. Training and educating personnel according to established standards to include inculcating a strong spirit to defend the nation
2. Conducting training of all units at designated readiness levels
3. Maintaining units at designated readiness levels
4. Providing designated forces for combined exercises and operations with NATO and other partners
5. In peacetime, providing air traffic management
6. Developing the air situation picture
7. Conducting air policing
8. Providing designated forces for national search and rescue operations
9. Participating in the development of airfields, which are interoperable with the standards of NATO and other partners
10. Transition to a wartime command structure
11. Increasing readiness levels of designated units through intensifying training and exercising wartime tasks in times of crises
12. Integrating air units from Ministry of Internal Affairs and civilian air assets in times of crises
13. Upon approval by the government, activating host national support system for external forces
14. Providing air traffic management (transition to war)
15. Conducting air operations, including air defense, in support of defense forces
16. Conducting combined and joint air operations
17. Combat Search and Rescue

The missions of the Defense League:

1. Raising citizens' will to defend their country through training and patriotic activities
2. Conducting professional training according to established tasks, conditions and standards
3. Assisting civilian authorities in natural disasters or man-made catastrophes
4. According to established standards, conducting refresher training of Territorial Defense Units
5. Assisting in mobilization
6. Assisting in forming national defense units (transition to war)
7. Forming the territorial defense units at designated readiness levels
8. Through absorption of designated units and individuals into national defense organization, participating in the defense of the country
9. Providing remaining Defense League assets to support national defense

This mission (task) list is relatively detailed. For practical purposes, to reduce the scope of the analysis in the following chapter to a manageable size, it seems reasonable to group these missions into broad packages that contain a set of missions for related purposes. A set of possible packages is presented next. As these packages cross organizational lines, the detailed missions of individual services are related to these packages by using codes: A means Army, F means Air Force, N means Navy and DL means Defense League. The numbers after characters indicate special missions of the services, for example: A5 denotes the fifth mission of the Army or coastal defense. The mission packages are:

1. Training and Education: A1, A2, F1, F2, N1, N2, DL1, DL2, DL4
2. Readiness: A3, F3, N3
3. Alliances and Partnerships (this could further be classified into Host Nation Support and Participation in International Operations): A4, A11, F4, F9, F13, N4, N8, N9, N18

4. Mobilization and Deployment (Transition to War): A7, A8, A9, A10, F10, F11, F12, F14, N11, N13, N14, N15, N16, DL5, DL6
5. Wartime Operations: A5, A12, A14, F15, F16, F17, N6, N12, N17, N19, N20, DL7, DL8, DL9
6. Defense Support to Civil Authorities: A6, F8, N10, N16, DL3
7. Monitoring and Control over Airspace and Territorial Waters: F5, F6, F7, N5, N7

To facilitate reading and understanding, Appendix G presents the uncoded list of the aforementioned packages and their constituent missions. The next section gives an overview of the current EDF and their development goals.

B. THE ESTONIAN DEFENSE FORCES AND THE MEDIUM-TERM DEVELOPMENT GOALS

1. The Estonian Defense Forces (EDF)

According to the newly approved Estonian Military Strategy, the EDF comprise the Regular Armed Forces and the volunteer-based organization, and the Defense League in peacetime. The Regular Armed Forces is comprised of army, naval and air force units. In wartime, a number of militarily organized agencies and units under the Ministry of Interior, mainly the units of the Border Guard and some rescue units, will also be transferred to the command of the Supreme Commander of the Defense Forces. The EDF personnel comprise the conscripts, the professional military and the reservists when called into service. The reservists comprise the bulk of the personnel. Based on the functions and capabilities, the EDF consist of General-Purpose Forces (Reaction Forces and Main Defense Forces) and territorial defense forces.

The Army has the primary role of defending Estonian territory. Most of the Army units are based on the reserves. In peacetime, it consists of the Reaction Forces, the Territorial Forces, the Training Forces and the Supporting Forces. After mobilization, the

Army comprises the General-Purpose Forces, the Territorial (Defense) Forces and the Augmentation Forces. The peacetime Army consists of six infantry training battalions, one artillery training battalion, one air defense training battalion, the Peace Operations Center, the Estonian company of the BALTBAT, the joint battalion of the Baltic states that forms the nucleus of the reaction forces, and staffs. Most of the Army units are not considered to be combat units in peacetime, but units for the training of conscripts and the reserves. They are manned and equipped at various levels. In wartime, the Army will form regional commands. The main forces under the subordination of commands are brigades that are formed mainly from the reserves, and territorial defense units that are formed on the basis of the Defense League.

The Air Forces are responsible for all air operations in Estonia. The structure of the Air Forces is similar during peace and in times of war. Based on the operational tasks and capabilities, the Air Force units are divided into air surveillance, rapid reaction and air defense. During peacetime, the Air Forces consist of an air base and an air surveillance battalion.

The Navy is responsible for all naval operations. The structure of the Navy varies little during peace and wartime. It comprises a naval base, naval units and coastal defense.

The Defense League is a voluntary defense organization. It participates in the preparation, activation and implementation of the territorial defense and total defense system. During mobilization the Defense League units will form the basis of territorial defense units.

In addition to the aforementioned units, there are a number of units under the direct subordination of the Chief of Defense. They include the General (Joint) Staff of the Defense Forces, a signals battalion, a reconnaissance battalion, a logistics battalion, central depots, a central training area and educational institutions: a NCO school (Combat School) and Military Educational Establishment for preparing officers, including the Estonian part of the BALTDEFCOL - the Baltic Defense College for preparing staff officers mainly for the Baltic countries.

The Border Guard is subordinated to the Ministry of Interior during peacetime. During mobilization, the designated Border Guard Units will be transferred to the command of the Supreme Commander of the Defense Forces. This study does not consider units under the Ministry of Interior's sphere of administration.

The current peacetime EDF comprise about 5,000, including the active duty military and civilians, but excluding the reservists. The reservists are classified into various categories and the current EDF are neither able nor planning to equip and organize all potentially available reservists into fully equipped and trained wartime military units in the near future. The EDF plan to use the reservists according to the development goals that are described next.

2. Medium-Term Development Goals³⁰

One of the priorities for the coming years is to develop a total defense system. This system encompasses the entire society and consists of military defense, civil

³⁰ This section is a brief unclassified summary based on various Estonian planning documents, and especially the aforementioned Estonian Military Strategy and unclassified parts of the Estonian Annual National Program 2000/2001 in the NATO Membership Action Plan framework and the MoD's "Guidelines of the Defense Forces' development for the 2001". The actual development plans are much more detailed. The term "medium" refers to approximately five years ahead.

defense, economic defense and civil preparedness. As such, this goal exceeds the responsibility of the MoD and requires the cooperation of all ministries and other state and non-state institutions.

From the military perspective, the priority of the Army is to develop two light infantry brigades of the Main Defense Forces, a reaction forces battalion and the command and control system. Additionally it will continue the implementation of the territorial defense concept. The Army Staff is responsible for defining the tasks in times of crisis and war. The planning of the implementation of those tasks is the responsibility of the defense areas. They form the basis of the Army commands in wartime.

The Air Force will continue to develop the airspace control system, including air surveillance and rapid reaction capability, and the Navy will concentrate on the further development of mine warfare capabilities.

Although the next priorities are related to the previous goals, the more “international” side of the development priorities is given separately. The following generally applies, except the peace operations that are limited to the Army, to all three services and also to the civilian part of the total defense. One of the priorities is the development of an infrastructure that would enable Estonia to receive humanitarian and military assistance. The continuing participation in international bi- and multilateral defense-related cooperation projects and ensuring the capability to participate in peace operations are other priorities. To participate in collective planning and defense through the NATO Membership Action Plan (MAP), the NATO Partnership Goals (PG) initiative

and the NATO Partnership for Peace Planning and Review Process (PARP)³¹, a number of additional aspects must be taken into account by implementing the development goals described above.

Both the peacetime and wartime structure of the EDF is currently under review, considering that the Government adopted a new military strategy document early in 2001. The process is expected to be completed by the end of this year. The next section describes the planning and budgeting process through which the above-mentioned goals should be carried out.

C. THE PLANNING AND BUDGETING PROCESS OF THE MINISTRY OF DEFENSE³²

The Planning and Accountancy Process (PAP) regulates the planning, the preparation of the budget and the accountancy process in the MoD's sphere of administration. A summary of these procedures follows. The MoD and the Chief of Defense work out the perspective development plan of the Defense Forces for the period of 10-15 years and the long-term investment projects. On the view of the prospective development plan, the MoD submits the structure of the Regular Armed Forces and the Defense League, as well as the proposals for the formation, re-formation, dismissal and location of the units to the Government for approval.

³¹ NATO provided 62 Partnership Goals to the aspiring members that should guide the development towards interoperability of the candidate members' forces with NATO forces. The PGs cover diverse areas, from specifying the English language skill requirements to requirements to the doctrine and standards of communications. The MAP and PARP also contribute to the achievement of interoperability and facilitate the fulfillment of the technical criteria for potential NATO membership. The scope and focus of the thesis and the classification requirements do not allow nor require giving a detailed picture here.

³² This section is based on the "Guidance for the Conducting of the PAP in the MoD and its Sphere of Administration".

The PAP has several basic documents: the five-year development plan of the Defense Forces, the draft budget of the MoD's sphere of administration, and the annual activity report of the Minister of Defense and the Chief of Defense. The Defense Forces' five-year development plan directs the activity and development of the Defense Forces during five years, beginning from the year after next³³, following the approval of the document. In the course of an annual review, one new planned year is added. After the approval of the five-year development plan, the MoD's draft budget serves as the basis for the drafting of the annual development plans of the Defense Forces. The five-year development plan is drafted by the Chief of Defense proceeding from:

The defense policy guidance for the drafting of a five-year development plan of the Defense Forces, presented by the MoD

The Structure of the Defense Forces approved by the Government and the employed personnel of the Regular Armed Forces and the Defense League approved by the Ministry of Defense

The perspective development plan and the long-term investment projects of the Defense Forces, prepared on the ground of the Guidelines³⁴

The draft budget of the MoD's sphere of administration is prepared by the MoD proceeding from:

The draft budgets of the organizations in its sphere of administration

The limits set to expenses by the Ministry of Finance

The Defense Forces' five-year development plan completed at the end of the previous year

³³ In practice, however, the first year of the five-year development plan has been equal to the next budget year.

³⁴ "The Guidelines of the Defense Policy", approved by the Parliament in 1996, was until recently, the most influential long-term planning guidance for the development. The Government approved the national security and military strategies early in 2001. As a result, the importance of the Guidelines is likely to decrease. The Guidelines may be also amended, but this is currently not certain.

During the planning year, the MoD prepares the PAP subdocuments through which it manages and co-ordinates the planning of the development of the Defense Forces, the implementation of the plans and the review process. The MoD prepares several subdocuments, two of which are relevant to this study:

The aforementioned defense policy priorities for the drafting of the Defense Forces' five-year development plan - this document provides defense policy and general budgetary guidance

Defense policy priorities for the drafting of the MoD's draft budget – this document provides defense policy and budgetary guidance for the preparation of the Chief of Defense's draft budget and annual development plans

In the course of the PAP, the Chief of Defense submits to the MoD the PAP subdocuments through which the planning and review of the Defense Forces' development is carried out. These subdocuments relevant for this study are the following:

Guidelines of the Defense Forces' development for the next year. The document is presented to the Minister of Defense in response to the MoD's defense policy priorities outlined in the guidance for the drafting of the draft budget and the annual development plans. The Chief of Defense also presents his initial proposals regarding the budget allocations for the next year.

Chief of Defense's draft budget – official proposals regarding the national defense budget allocations for the next year, submitted to the Minister of Defense by the Chief of Defense.

For the conduct of the PAP, a number of planning meetings on several levels is carried out. As a result of these meetings, the Chief of Defense presents his final version of the five-year and annual development plans and the final next year's budget proposal.

D. THE STRUCTURE OF THE ESTONIAN DEFENSE BUDGET

When the MoD prepares its budget proposal to the Ministry of Finance and when the Chief of Defense and the administrative units under direct subordination of the MoD

present their budget proposals to the MoD, they are not free to structure the budget any way they like. The budget structure must conform to the State Budget Act that provides the overall framework and to the regulations of the Minister of Finances that specify the details of the mandatory part of the budget structure. Although the state budget comprises both revenues and expenditures, the thesis examines only the expenditure side of the Ministry of Defense's sphere of administration, which is the defense budget³⁵. The MoD sphere of administration has also some revenues, but their volume is so insignificant that it would not justify their inclusion in the study. The structure of the defense budget can be divided into three broad levels of detail. On the highest level, the State Budget Act gives several requirements. On a somewhat lower level, other regulations specify the rules. On a still lower level of detail, the ministries and other agencies and institutions finally have discretion to structure the information according to their needs within the framework established by the aforementioned documents. However, in this case the Minister of Finance must be informed of these changes. How these requirements influence the budget structure is presented next.

1. Requirements from the State Budget Act – Broad Level of Classification

The budget must be composed for one budget year that begins on January 1st and ends on December 31st. The expenditures and revenues must be given in nominal terms and are classified in various parts, chapters and articles:

³⁵ The thesis considers the budget of the MoD sphere of administration synonymous to the defense budget. Actual life is somewhat more complicated. Although the major part of the budget of the Ministry of Interior's sphere of administration would not qualify as defense-related, some expenditures, especially those incurred by the Border Guard and Rescue Service could also be partially classified as defense-related. To an even lesser extent, some expenditures incurred by other ministries could also be defense-related depending on the criteria that are selected to recognize defense expenditures. However, because of their small size, similar basic budget structure (same budget articles are used) and the fact that the MoD has no direct control over those expenditures, leaving the other ministries out does not have a significant impact on the study.

- Parts – they are classified according to administrative lines and obligations specified by various laws. The parts are the *Riigikogu* (Parliament), President, State Chancellery, Supreme Court, the spheres of administration of the ministries and some other organizations. The whole defense budget falls into one part – the sphere of administration of the Ministry of Defense.
- Chapters – this is functional classification that comprises government agencies, and lower lever agencies under the administration of the former, several other legal persons and groups of expenditures. The defense budget chapters are specified by the regulation of the minister of finance.
- Articles – they are classified according to the economic content of the expenditure. The Minister of Finance specifies those articles that the Ministry of Defense cannot define itself.

The Minister of Finance authorizes the principal list of parts, chapters and articles.

It is collectively called the classification of revenues and expenditures, but this refers to several documents. The government on the proposal of the Finance Minister determines the extent to which the revenues and expenditures are to be classified, but the aforementioned classification of revenues and expenditures is to be taken as a basis.

2. Requirements from the Classification of Revenues and Expenditures – Medium Classification Level

As mentioned before, the classification of revenues and expenditures is a collective term referring to several documents. Two of these have relevance for the defense budget expenditure structure. The first one, the “Classification of the State Expenditures by Administrative Arrangement and Functional Purpose” (“*Riigi kulude klassifikaator administratiivse jaotuse ja funktsionaalse otstarbe järgi*”) specifies the parts and chapters of the state budget, including the defense budget. It is quite a long document, but the defense part is relatively small. Therefore, the list of the defense budget chapters is given here in full detail. The numbers before the names of parts and chapters indicate the part/chapter codes given to them by that document:

Part 132: Ministry of Defense

Chapters:

- 01 Ministry of Defense
- 02 Defense Attachés
- 03 Information Service
- 04 Funds for Results-Oriented Management
- 10 The Institutions and Organizations of the MoD
- 11 Educational Institutions of the Regular Armed Forces
- 30 General (Joint) Staff of the Defense Forces
- 40 Military Units of the Regular Armed Forces
- 52 NATO Partnership for Peace Program
- 53 Defense-Related Projects
- 60 National Defense Departments
- 81 Defense League
- 91 Special Equipments and Military Clothing
- 97 Investments of the MoD Sphere of Administration
- 98 Other Expenditures of the MoD Sphere of Administration

The other document, “Classification of the State Expenditures by Economic Content” (“*Riigi kulude klassifikaator majandusliku sisu järgi*”), specifies the codes³⁶ and names of those budget articles the usage of which is mandatory to everybody in the Estonian state apparatus. It specifies all articles with up to three digit codes. The names and codes of the articles are not given here in full detail, because of their length and little relevance of every detail to the analysis that follows in the next chapter. If some more details are necessary for the analysis presented in the next chapter, they are given directly in the analysis. Examples of articles important for the defense budget follow:

³⁶ The articles have codes that specify their level of aggregation. One-digit articles are just broad classes of expenditures such as operating costs. Two-digit articles are more specific. The Parliament approves the state budget at the level of two-digit articles. Three-digit articles are the lowest level of classification that are predetermined by the minister of finance.

1. Operating Costs (summarizes Articles 10-49)

1.1. Personnel Costs (summarizes Articles 10-29)

Articles 1. and 1.1. are one-digit articles, such articles are specified for grouping purposes, but they are not specifically mentioned in the actual budget.

10 Salaries and Wages (a two-digit article summarizing Articles 11-19)

11 Salaries of Public Servants

Although this is also a two-digit article, it is subordinate to Article 10 specifying a part of it.

111 Base Salary

This is a three-digit article that specifies a part of Article 11

...

21 Social Tax

26 Aids

27 Compensations

The Articles from 21 to 29 are personnel costs other than salaries and wages. They are not grouped together similarly as article 10 does for salaries and wages.

1.2. Maintenance Costs

This is also Article 30 at the same time and summarizes Articles 31-36 and 48-49.

31 Chancellery costs

32 Maintenance Costs of Registered Immovables, Buildings and Rooms

321 Heating

322 Electricity

...

35 Operations and Maintenance of Vehicles

351 Fuel

Articles 37-47 summarize very different things, e.g. 37 Information Technology (procurement of hardware and software and projects, information systems etc.), 41 Catering, 42 Medicines and Binding Materials, 46 Defense-Related Equipment, Inventory and Materials (e.g. 462 Clothing, Belts and Footwear, 466 Armament, 467 Naval Vessels)

...

54 Transfers to Other Sectors to Partially or Totally Compensate Incurred Costs

3. Capital Expenditures (Investments) (summary of Articles 71-73) (e.g. 73 Capital Repairs, 76 Procurement of Movables and Animals, e.g. 761 Passenger Cars, 77 Procurement of Immovables etc.)

5. Other Costs (articles 91-99), e.g. 91 Operating Costs (Articles 10-49)

The actual defense budget structure is marginally different. The most obvious example is a separate category such as maintenance costs (*Ülalpidamiskulud*) in the budget that includes not only the maintenance costs (*Majandamiskulud*) (Article 30) but also social tax and wages and salaries (Articles 21 and 10)³⁷.

3. Lower Levels of Expenditure Classification

Given that the predetermined framework presented above is followed, the organizations are free to undertake further classifications of expenditures. The previously mentioned classification documents specify the articles up to the three-digit level. This means the classification into four-digit articles and further is not centrally regulated. For example, Article 351 Fuel as a subcategory of Article 35 Operation and Maintenance of Vehicles is currently classified further as Article 3511 Fuel for Cars, Article 3512 Fuel for Ships and Article 3513 Fuel for Aircraft. However, the predetermined framework seriously limits the freedom of budgeters in creating new expenditure categories. In general, the four-digit articles build the lowest level of defense budget classification at present. Appendix F gives the structure of the defense budget as approved by the Estonian Parliament. The budgets of individual military units from the battalion level and up have essentially the same structure, except that they are more detailed than the budget

³⁷ It must be taken into account that the terminology used in Estonia may eventually differ from that used in the U.S..

specified by the Parliament: the expenditures are classified up to the level of four-digit articles.

How suitable this budget structure is for different purposes is the main topic of the next chapter.

V. ANALYSIS OF THE ESTONIAN DEFENSE BUDGET STRUCTURE

A. FUNCTIONS AT WHICH THE CURRENT BUDGET STRUCTURE EXCELS

The previous chapter identified that the current state budget structure is based on parts, chapters and articles. The whole MoD budget is a part of the state budget, in both the general sense of the word as well as in the technical sense. It is part 132 of the state budget. This classification allows the government to compare the expenditure totals that are allocated between different broad functions of the government such as defense, internal security, education and the environment. Therefore, the classification of the state budget into parts makes sense from the point of view of the whole government. From the point of view of the MoD/General (Joint) Staff, this classification is too broad for almost any purposes, except to argue for the “adequate” share from the state budget for defense. Thus, the thesis will not investigate further the largest category of the budget: parts.

The next level of categories in the defense budget are chapters. Generally, the largest administrative or military units in the broad sense, including staffs, and military schools or their groups, are separate budget chapters. Another group of chapters forms various groups of expenditures, mostly for capital investments or central procurement both for capital investments and day-to-day operations that are not included in the budgets of separate organizational entities. This classification, at least the operating part of it that is allocated among organizational entities, gives important information to the administration because the administrative units mentioned in the budget can see the size

of their budget and the amounts in different expenditure categories they can spend next year.

Finally, the articles specify on which objects of expenditure money can be spent and how much money there is to spend. The fact that the Parliament approves the budget separately for individual two-digit articles constrains the freedom of administrators to allocate resources between different articles. However, because the administrators have freedom to allocate resources among lower-level articles they still have some flexibility.

The current budget format allows classifying and specifying the budget expenditures at the level of detail that is needed in a concrete case. There is theoretically no limit to the number of lower level budget articles that can be created in individual organizations, provided that the mandatory classification structure of up to three-digit articles is used as a base. The mandatory part of classification focuses on things to buy such as procurement, or a type of expenditure such as salaries for officers. In other words, this budget classification excels at showing objects of expenditure at various levels of aggregation. Using the information from Chapter II about different budget formats, it is clear that this budget format is that of a line-item budget.

According to Schick's (1978) classification given in Chapter II, this type of budget format is the best at fulfilling the first function of budget classification may serve: control. The Estonian defense budget is built on objects of expenditure. This makes it relatively easy to ensure that funds are spent only on those expenditure classes that were allowed, for example, on wages to officers or on electricity or heating to maintain the buildings. This format also makes it relatively easy to check whether particular budget

accounts, or in Estonia's case, the budget articles are being overspent. That all budget proposals from MoD sphere of administration to MoD must indicate the funds, or the average number of personnel positions and other input-type indicators, approved in the previous year, the current year and the next year³⁸ for different articles, makes it possible to compare the percentage changes in the budget and gives hints on where to question the requested incremental changes from the previous year. Control is an important element of parliamentary oversight over spending and keeping the state solvent. That all state institutions must use the same budget articles makes it relatively easy for the Ministry of Finance to compare the same expenditure groups or articles in general and question sizable differences in expenditures in comparable agencies. The importance of this function cannot be underestimated. Control is also an important element of civilian oversight over the military. However, is this format also suitable for making rational decisions for implementing military strategy and development goals? This aspect of the budget classification process is examined in the following parts of this chapter. First, the analysis discusses the criteria for rational decision making identified in Chapter II and assesses their relevance from the Estonian MoD perspective. Then the analysis specifies the meaning of the selected criteria in the case of Estonia. The actual analysis of the budget structure using those criteria forms the last analytical part of the chapter.

B. SELECTION AND SPECIFICATION OF ASSESSMENT CRITERIA FOR RATIONAL DECISION MAKING

Relying to Anshen (1969, pp. 10-11), Chapter II identified several criteria a budget structure should meet to support rational decisions. On the other hand, they were identified to the government as a whole and may or may not be suitable for the Estonian

³⁸ This is required by the order from 13 March 2000 of the Minister of Defense.

situation. Therefore, their applicability to the Estonian case is assessed next and if a particular criterion is relevant to the MoD/General Staff, then this general criterion is specified for the Estonian case.

- The budget design should facilitate a meaningful measurement of the total money costs of accomplishing the defined objectives. In the military budget, for example, this would mean a statement of the full costs of a proposed new missile system, research and development, investment and operation

This first criterion makes sense in general. By identifying the total money costs of the proposed activities or procurement, better decisions can be made in the MoD. In the Estonian context, the defined objectives could be the missions given by the military strategy. In a more specific sense, the objectives are the procurement of weapon systems or other equipment and building infrastructure. Regarding the mid-term objectives, developing two light infantry brigades, a reaction forces battalion and command and control system would be the objectives for the Army. In the case of the Air Force, developing an airspace control system and in case of the Navy, developing the mine warfare capabilities, would be their specific objectives.

- The budget structure should facilitate the comparison of alternative ways to accomplish a given objective. A military example might be the comparison of full time-based costs of a submarine-based missile system with a comparable cost display for a land-based missile

This second criterion also makes sense in the Estonian case. Giving alternatives widens the options the decision makers can have and that is relevant also in the MoD case. The given objectives would be the missions specified by the Estonian military strategy and the alternatives would show different ways to carry out the missions and their costs.

- The budget presentation should clearly identify the future cost implications inherent in near-term financial commitments

This third criterion is extremely important, because in the past there have been projects in the MoD's sphere of administration that were started first, but then cancelled because of the lack of funding. The MoD is interested in avoiding similar situations in the future. This criterion applies to all decisions that have potentially large future cost implications, especially to the procurement of major equipment, the development of infrastructure and, on a more general level, the establishment of new military units, and here developing two infantry brigades is the most important mid-term goal, necessary to carry out the missions of the strategy. Whereas the third criterion deals only with future costs, the first criterion focuses on the total costs of the objectives. Usually the largest part of the costs of large projects started today is incurred in the future. In this sense criterion three is related to criterion one.

- The budget design should facilitate a comparison of cost inputs and achievement outputs when related segments of a single program are administered by different management units. An example might be hospital services under the direction of the Veterans Administration versus hospital services under another jurisdiction

This fourth criterion is also extremely important, because a number of management units are often involved in the same programs. The EDF missions often cross organizational lines. An example would be the training of conscripts and the reserves, or the coastal defense.

- The budget design should delineate the objectives of discrete spending commitments in such terms that significant cost-effectiveness (cost-utility) analysis can be carried out. There are obvious limitations on our ability to define measurable goals, or even measurable progress toward such goals...Nevertheless, the budget design should seek continually to expand the area of informed analysis

Following costs and effectiveness in the same package should be the goal of all management units and the MoD sphere of administration is not an exception. Of course, assessing costs and effectiveness makes sense only if there are alternatives from which to choose. In this sense, the fifth criterion is related to the second criterion and supports it. In the sense of comparing costs and effectiveness (achievement outputs), this criterion relates to criterion four.

- The budget design should make it possible to aggregate related expenditures whenever they occur in the government's sprawling administrative structure

This sixth criterion seems to be a subset of the fourth criterion. In the Estonian case, the related expenditures incurred in the MoD sphere of administration should relate to the accomplishment of the missions or the mid-term development goals.

- A budget that effectively meeting the foregoing criteria should go far toward serving another important need – that of generating economic data on federal inputs to the national economy by meaningful activity segments

This seventh criterion is mainly important to people outside the individual government agencies. The MoD does not deal with the national economy as a whole. Therefore this criterion, although important in itself, is irrelevant for the decision makers in the MoD and will therefore not be used in the following analysis.

C. THE CURRENT BUDGET STRUCTURE AND RATIONAL DECISION MAKING

The analysis focuses on two broad issues. First, since the military strategy that gives missions to the forces was approved only recently whereas the budget structure is relatively old, it would be unrealistic to expect that the current budget structure would exactly allow showing the expenditures that are needed to fulfill different missions. A budget structure aligned with missions can be developed only after the missions are

known. Nevertheless, the first aspect of the analysis assesses how much the current budget structure is aligned with the missions. Of course in the case of the missions, there is no hope for calculating the total costs of carrying out the missions for an unlimited time in the future. The mission-oriented analysis focuses on five years ahead. Second, the EDF have a number of mid-term development goals that were described in the last chapter and they existed also before officially adopting the strategy. Therefore, the second aspect of the analysis assesses how much the budget structure is aligned with those development goals. The rationale behind this is the assumption that the attainment of these goals serves as the proxy for the security value of the defense preparations and hence also of the defense budget. On the following pages the analysis gives the assessment criteria specified by Anshen (1969, pp. 10-11) and modified in the previous section and then analyses of how much the budget structure satisfies them.

1. Criterion One and the Budget Structure

The budget design should facilitate the meaningful measurement of the total money costs of accomplishing the missions of the strategy, development and operating force structures, infrastructure and procurement and operations of major equipment.

a. *First Mission Package: Training and Education*

In the budget structure, there does not exist a category, chapter or article that is called training and education. The closest classifications in the budget are Chapter 11 (Educational Institutions) for education and Chapter 40 (Military Units) for training. The problem with those chapters is that they do not include all the costs that are incurred by training and education. At the same time, they include costs that are incurred by carrying out other broad mission packages.

First, these chapters do not include the costs for Information Technology (Article 37), central procurement (in Chapter 91) and infrastructure (in Chapter 97) that are incurred by training and education. Moreover, Chapter 91 does not separate procurement, for example, of ammunition, for training and education, and procurement for other purposes, for example, ammunition for mobilization reserves. In general, the budget articles concerning procurement group together similar objects regardless of their purpose. For example, Article 46 (Defense-Related Equipment) is subdivided into 461 Ammunition, 462 Clothing, Belts and Footwear, 466 Armament etc., but no separate article exists for ammunition for training and ammunition for mobilization reserves or for clothing for training and clothing for the reserves.

Second, besides the training unit budgets, Chapter 40 also includes organizations that have little or nothing to do with training and education, for example the Air Force staff or central depots. Regarding Chapter 11, although giving education and training is the main purpose of the educational institutions, they may also have to contribute to other broad mission packages such as ensuring readiness and transition to wartime, but the current budget structure does not distinguish between these packages.

b. *Second Mission Package: Readiness*

Although there are reaction forces such as the reaction forces battalion in the Army and the reaction capability of the Air Force, in Estonia, the budget does not identify the costs for readiness in Chapter 40 nor in any other chapter. In a more general sense, all military units must be in the predetermined state of readiness that may or may not have something to do with training. In any case, there are no separate readiness

articles or chapters in the budget and the costs for readiness are not identifiable in any other sense.

c. Third Mission Package: Alliances and Partnerships

The closest to this mission package are Chapters 02 (Defense Attaches), 52 (Partnership for Peace) and 53 (Defense-Related Projects: Peace Operations Center, and the Baltic projects, the Baltic naval squadron BALTRON, the Baltic battalion BALTBAT and the Baltic air surveillance project BALTNET) and parts of Chapter 97 (infrastructure that also includes development of infrastructure for host nation support). As compared with previous mission packages, this package is relatively well identifiable in the budget. Once again, however, central procurement for this package is not separated from procurement for other mission packages.

This is also a good place to illustrate the dilemmas of budget classification if it is done not on the basis of objects of expenditure, but of purpose. The dilemma arises from the multiple purposes the same activities such as equipment can have. For example, if an Estonian military unit is participating in an international military exercise, it may contribute to the Alliances and Partnerships mission package. At the same time, participating in an international operation or exercise may contribute to the training, readiness and so on. Yet, for budgeting purposes, the same cost may be only counted once. The same applies to the Baltic projects. The BALTBAT project is an important element for establishing the rapid reaction capability (mission package: Readiness), and the BALTRON and BALTNET contribute not only to the partnerships package, but also to the last mission package (Monitoring and Control of Airspace and Territorial Waters). How to divide their costs is entirely judgmental.

d. Fourth Mission Package: Mobilization and Deployment

The closest related thing in the budget is Chapter 60 (National Defense Departments). The National Defense Departments are responsible for calling conscripts and reservists into service and keeping records on them. They also play a critical role in activating mobilization plans. However, the National Defense Departments are not part of the three services. They are under direct subordination of the MoD. No budget chapter or article is directly associated with this mission package in the services. As a result, whether and how much costs arise in the individual services to guarantee a smooth transition from peacetime to wartime, is impossible to see from the current budget.

e. Fifth Mission Package: Wartime Operations

This category includes a number of individual service missions that were related to wartime activities. After a transition from peacetime structure to wartime structure, the mobilization reserves can be used for conducting wartime operations. Taking this into consideration, the peacetime budget should identify the procurement and maintenance of wartime reserves under this package. Other costs are likely to be already included in other packages. The training of wartime units and a transition from peace to war was already included in the first and fourth packages, so this does not need counting any more. There is no budget chapter or article that would separate procurement for training and everyday operations and procurement for mobilization reserves. The already mentioned Chapter 91 classifies all purchases according to objects, not according to the purposes of those objects. Thus, procurement of mobilization reserves is not identifiable. Regarding maintenance of these resources, there is also no chapter or article indicating the costs of maintaining the mobilization reserves such as the cost of warehouses or

guarding. If a mobilization depot is built, the money comes from Chapter 97 (Investments) that again does not distinguish between the purposes of the buildings.

f. Sixth Mission Package: Defense Support to Civil Authorities

Although this is an important mission package, there is no budget chapter or article that would encompass this issue.

g. Seventh Mission Package: Monitoring and Control over Airspace and Territorial Waters

There is no budget chapter, article or a combination that would capture the whole package. The closest in the budget are the operating budgets of the Air Force staff, the Airbase, the Navy, the BALTRON and the BALTNET in Chapter 40, but they do not include capital investment and central procurement. Their operating budgets again include not only costs for this package, but also costs for all other packages in these units. The classification problems with the BALTRON and the BALTNET were already mentioned in the Alliances and Partnerships package. Their budgets must belong here or there, but not to both places at the same time unless their budgets are allocated to both packages by using some of the same rules of thumb.

h. Budget Structure and the Development Goals

If the budget structure scores poorly at classifying costs around the mission packages for obvious reasons such as the missions are new and the budget structure is old, maybe it would be better to link the development goals with their costs. One of the most important mid-term goals was the development of two infantry brigades. There is no indication in the budget of how much money will be spent in the budget year for this purpose. The money is dispersed among a variety of chapters and articles. For example, money for training would come from the operating budgets of the training units,

such as salaries for trainers, operating costs of the training units like heating, water, catering costs, and training ammunition would come from Chapter 91. Chapter 91 would also include procurement of mobilization reserves for these brigades. These various chapters and articles do not specifically identify costs for developing these brigades and costs for some other purposes such as the development of rapid reaction capabilities or a command and control system. Another shortfall of the budget structure is especially clear here. The development of a brigade is not a task for one year, but for several years ahead, but the budget structure includes only costs for one budget year. As a result, the budget structure lacks the time dimension necessary to show the total cost of this goal. The same applies to the development of other military units or capabilities like the airspace control system in the Air Force or mine warfare capability in the Navy. The costs identified by chapters and articles group costs by objects of expenditure, not by purpose.

Even if a much less ambitious goal is selected, such as the total cost of a major weapon system, the budget identifies directly only the immediate procurement costs and does not consider the subsequent operating costs such as R&D which is practically irrelevant in the Estonian case. The same problem arises with the development of major objects of infrastructure. Only the immediate construction costs are readily identifiable. Despite these deficiencies, the total costs of multi-year procurement and construction initiatives that go into Chapter 97 (investments, mostly infrastructure), and central procurement in Chapter 91 are sometimes better identified than other expenditures, although not because of the superior structure of these chapters. Although the annual budget structure does not include costs for the years after the budget year, at least the procurement costs of these large projects are estimated outside the budget for the

entire period of their completion. This is because in the case of multi-year procurement or construction, contracts must be signed with private companies, which deliver equipment or undertake construction. At the same time, however, this costing neither pays enough attention to the operating and maintenance costs of the newly built infrastructure or purchased equipment, nor are these cost projections obvious in the budget structure.

i. Conclusion

Regarding mission packages, the current budget structure for the most part does not identify even the annual costs that are incurred by carrying out the major mission packages, not to mention the total costs of a multi-year enterprise. Regarding the development of wartime brigades and other major development goals, the budget articles do not identify the total money costs for achieving these goals. First, the budget focuses on one year only, whereas the development of wartime forces and capabilities takes a number of years. The other shortfall is that the budget does not group the costs around development goals (wartime forces) that should be the ultimate purpose of the expenditures, but around the objects of these expenditures.

2. Criterion Two and the Budget Structure

The budget structure should facilitate the comparison of alternative ways to accomplish given objectives: carrying out the broad mission packages or accomplishing the broad development goals.

a. First Mission Package: Training and Education

Of course, a choice is possible only if there are alternatives from which to choose. In case of officers and the NCOs, the Educational Institutions of the Regular Armed Forces are the only organizations capable of giving officer education and NCO training. In this sense, it would be unreasonable to demand developing alternative

institutions for the sake of having an alternative in the budget if the current ones are satisfactory. However, there may be alternatives regarding the number of people that must be educated or trained in a year to satisfy the requirements for educated people. In this sense, the budget does not present any alternatives but only lists the budget articles in Chapter 11. Again, because the costs of central procurement or construction incurred by giving education or training is not associated with Chapter 11, this chapter does not even illustrate the costs for one alternative by listing all the costs for officer and NCO education and training. Regarding the training of conscripts and the reserves, a number of military units, mainly from the Army, but to a certain extent from all services, conduct conscript and reserve training. The budget does identify training units as a package. The operating budgets of most military units are combined into Chapter 40. Although the Parliament approves the operating budgets (Chapter 40) of most military units as a package, it is possible to divide Chapter 40 into operating budgets for its constituent military units. When this is done the picture becomes clearer, because then the operating budgets of military training units can be presented together with the number of people/wartime units a particular training unit could train in a budget year. Yet, the current budget presentation of a training unit as part of Chapter 40 does not identify the number of people/wartime units that this unit is planning to train with the budget. In this sense there are no conscript/reserve training alternatives in the budget. Furthermore, the military training units do not have training budgets, but operating budgets that identify all operating costs of the units, not just training costs. Therefore, the operating budgets of the military training units cannot be equated with training costs, because the units may contribute to several mission packages and because some costs incurred by training are

not included in the operating budgets. Another question is connected with the maintenance costs of the peacetime units. These costs are not directly associated with training or any other mission package, but they are necessary to keep the unit functioning regardless of what it does. These costs may or may not be charged to the training package depending on the currently missing agreement of where to charge these costs.

b. Second Mission Package: Readiness

The analysis under the previous criterion identified that the budget does not separate costs for readiness from other costs. Therefore, the costs of maintaining readiness are unknown. The budget does not also identify alternative readiness levels that could be achieved by different funding levels either in individual units or in the armed forces in general. The budget also does not present alternatives on how to keep units at predetermined level of readiness and the costs of these alternatives.

c. Third Mission Package: Alliances and Partnerships

The budget does not identify any alternative ways and their costs of providing forces for international operations. The same is true for providing host nation support. The costs of two possible alternatives, providing host nation support for ships or host nation support for aircraft, are not identifiable.

d. Fourth Mission Package: Mobilization and Deployment

The analysis done under the first criterion could not even identify costs for carrying out the missions in this package. Consequently, no alternatives can be identified.

e. Fifth Mission Package: Wartime Operations

The analysis done under first criterion could not identify even one alternative. As a consequence, the budget also does not identify alternative ways and their costs of carrying out the missions in this package.

f. Sixth Mission Package: Defense Support to Civil Authorities

The analysis done under previous criteria did not find even a single way and its costs to carry out the missions in this package.

g. Seventh Mission Package: Monitoring and Control over Airspace and Territorial Waters

There are no alternatives in the budget. The costs of two possible alternatives, control over airspace and control over territorial waters, are not identifiable.

h. Budget Structure and the Development Goals

The analysis of the previous criteria identified the lack of correspondence between the budget chapters and on the one hand and articles and the development goals on the other. Therefore, there is no obvious way to allocate or reallocate money among those goals in the budget, because doing so would require knowledge about the correspondence of budget articles with development goals. There are also no alternatives in the budget regarding how the increased budget could increase, how the decreased funding would decrease the achievement of goals or how the funds allocated to a particular goal could be alternatively used.

i. Conclusion

There are no alternatives in the budget at all, neither for carrying out the missions of the strategy nor carrying out the development goals. Therefore, the second criterion of rational decision-making is completely unsatisfied.

3. Criterion Three and the Budget Structure

The budget presentation should clearly identify the future cost implications inherent in near-term big financial commitments, procurement of major equipment, development of infrastructure or generally, developing wartime forces.

As presented in the previous chapter, the budget structure includes only expenditures for the current budget year, and the budget proposal includes only expenditures for the next year. Therefore, there is no place in the budget that would allow for the presentation of future cost implications of procurement, construction or any other financial commitment. The costs for procurement and construction are separated from the costs of operations and no part, in the general sense, of the budget links together the operating costs of these newly procured equipment or constructed buildings and the immediate costs of their procurement or construction. The costs of near term financial commitments could be included in the budget by projecting the budget into several years ahead, a hypothetical exercise today. In this case, it would be possible to show the resulting increases in the costs of operations of the administrative units and capital investments and the criterion is better satisfied. However, even in this case, it is only possible to see the totals in the form of budget chapters and articles like Article 32 (Maintenance Costs of Registered Immovables, Buildings and Rooms) and Article 35 (Operations and Maintenance of Vehicles) for operations, Chapter 97 for investments and Article 37 (Information Technology) for both operations and investment. These chapters/articles do not distinguish between operating costs of existing and planned buildings, equipment or military units. They only summarize all the costs of the same input type. In other words, the future cost implications of near-term financial commitments would then be included in the budget, but not separated from costs of past commitments. The biggest problem, however, is that the budget structure does not consider future years after the next budget year. As a result, the budget is unable to

clearly identify the future cost implications of near-term financial commitments even if they are known.

4. Criterion Four and the Budget Structure

The budget design should facilitate a comparison between cost inputs and achievement outputs by carrying out the missions of the strategy or implementing the broad development goals when related segments of a single mission package are administered by different management units.

The mission packages identified in the previous chapter almost always cross organizational lines. If the ability to carry out the missions is considered as an achievement output, then some operationally defined measures are necessary to assess whether the missions are carried out as prescribed or not. The application of the first criterion identified a weak or nonexistent link between the mission packages or the achievement outputs, and budget chapters and articles or the cost inputs. The budget also does not present any achievement output measures. For example, for the first mission package, the achievement output measure could be the number of trained individuals or the number of trained military units, but they are not included in the budget. Some broad measures, for example, the total number of conscripts planned to be called to service, are currently included in the general explanatory notes accompanying the budget request, but they do not generally link these measures with costs. For mission packages other than training, the budget request does not even identify these broad measures. The budget presentation by chapters and articles also does not identify how the costs are related to the alternative achievement outputs, having two fully equipped and trained light infantry brigades ready in the mid-term, developing airspace control system or mine warfare

capability in the predetermined number of years and so on. As a result, criterion four is not satisfied, regardless of whether mission packages or development goals are used as achievement outputs.

5. Criterion Five and the Budget Structure

The budget design should delineate the objectives of discrete spending commitments in such terms that significant cost-effectiveness (cost-utility) analysis can be executed.

Doing cost-effectiveness analysis requires an agreement on how to measure costs and effectiveness. Currently there is no agreement in Estonia about these issues. In the framework of mission packages, effectiveness should be measured in terms of how a spending commitment contributes to the missions. For example, relevant questions could be how the costs for procurement of a radar system would contribute to airspace control in terms of needed area coverage (and no more) in package seven and how this compares with the costs of training a number of conscripts in package one, or with the cost of developing a host nation support capability in an airport in package three. Obviously, the current budget does not identify nor use effectiveness measures. In this sense, the fifth criterion is not satisfied, but this is not only the problem in the budget structure, but also in the lack of agreed effectiveness measures. Regarding cost inputs, the analysis under previous criteria identified a gap between the line items and the mission packages, or line items and the development goals. In this sense, even if there was an agreement about effectiveness measures for the mission packages or development goals in Estonia, the cost inputs, the budget chapters and articles, would still not be readily identifiable with them.

6. Criterion Six and the Budget Structure

The budget design should make it possible to aggregate related expenditures whenever they occur in the MoD sphere of administration.

The current line-item budget scores high at relating similar objects of expenditure to different organizational units and aggregating them on many levels of detail. For example, it is easy to summarize all personnel costs (Articles 10-29), costs for electricity, for the whole MoD sphere of administration, for the Army or for a unit within the Army. In this sense the budget satisfies the sixth criterion. This kind of classification facilitates the control over expenditures, for example, it makes sure that the same personnel posts are not paid too differently in different places and the organizations get a comparable share for maintaining their buildings of comparable size.

However, if there is a need to relate all costs to carrying out the mission packages, such as training or the costs of ensuring a smooth transition from peace to war, there is currently no or little indication about how much money should come from which budget chapters and articles. The situation is similar to linking related expenditures with different development goals, for example, expenditures for developing two infantry brigades in operating budgets of individual units and in procurement and construction chapters of the budget, which are not readily identifiable.

D. CONCLUSION FOR CHAPTER V

The current defense budget structure is based on line items (objects of expenditure), not on the purpose of the expenditures. This budget format scores best at keeping control over expenditures and at ensuring that the money is spent only on these objects of expenditure that were allowed regardless of purpose of these objects. The

working hypothesis of the thesis was that the current defense budget structure does not support rational decision making. To prove this, the chapter discussed the criteria for rational decision making and related them to the Estonian case. In general, these criteria focused on the missions of the forces that should then guide resource allocation. Since Estonian military strategy was adopted only very recently, it would have been an unrealistic expectation to find that the missions of the strategy were linked to budget articles. However, the analysis showed how weak this connection currently is. The second part of the analysis focused on the linkage between the current budget and existing broad development goals. Also, in this case, the current budget structure scored poorly. In other words, the working hypothesis is proven. The way the current budget structures expenditures does not support rational decision making.

Chapter II referred to some research findings, and confirmed that the way a budget is structured influences what the discussion will be in decision making and what kinds of decisions can be made. There are also some parallels with those findings in the Estonian case. The current budget is structured in accordance with the existing laws and regulations that focus on the control function of budgeting. The current budget structure scores well in control function. Effectiveness, or getting the most out of the budget to achieve the broad goals or carry out the missions of defense,- is not very important to the control function. As a result, this budget structure facilitates decisions based on the cost inputs and discourages decisions on the basis of achievement outputs or effectiveness.

As the justification letters and explanations of spending that usually accompany the budget requests in the MoD's sphere of administration do not influence the budget structure, they were not summarized in Chapter IV. However, even these documents do

not generally link the budget requests with the broad missions or goals of development. Instead, they further specify the basic resource inputs, like the number of personnel posts on which the basis of the personnel costs are calculated or separate maintenance costs between buildings, or equipment types. Nowhere is there usually an explanation to which missions or goals these personnel posts or buildings contribute or why exactly the given numbers and types of personnel, and buildings are needed. Since these questions are not very important to the control function, they can be neglected if control is the only function of budgeting.

On the other hand, if somebody wants to make more rational decisions that would allocate money among competing purposes and not budget articles on the basis of costs and effectiveness, and with regard to future implications of current financial commitments to future budget needs, the decision maker is helpless in the current array of expenditures because the budget for the most part does not satisfy these and other criteria for rational decision making identified in this chapter.

Even if the budget structure does not support rational decision making, it does not necessarily follow that the goals and missions do not form the basis on which budget numbers are composed and no rational decisions will be made. However because there is no clear linkage between the expenditures and their purposes in the budget, the only obvious thing the ministerial/high military level decision makers can do with this budget is to compare the next year's budget with the last year's in an incremental mode and rely on their personal experience and hope that their subordinate organizations/units have done thorough a analysis regarding alternatives, costs and effectiveness and that the priorities of the subordinate organizations are the same as the priorities of the parent

organization. However, the U.S. case, before adopting the PPBS that was mentioned in Chapters II and III, where the military plans were composed without regards to the costs and the budgets were composed without regards to the plans, strongly suggests that if a budget does not satisfy the criteria for rational decision making, the missions, plans and budgets are not linked and planning may become irrelevant regardless of whether the costs are too high, too low or just right which is solely a matter of chance.

Although the current budget receives high points on the control function, its structure does not support rational decision making. There are some caveats that soften this rather depressing conclusion. The first caveat is related to the political nature of decision making. The thesis generally did not consider this aspect other than referring to the proponents of incrementalism who appreciate the political flexibility of line items. By disregarding politics, then the current budget structure is completely irrational. In reality, however, this is an unrealistic assumption. Another caveat refers to the complexity. A budget structure that does support rational decision making could be so immensely complex that it would suffocate the whole budget process, as was mentioned several times in Chapter II. If the decision makers and analysts do not have enough time and mental energy to act even in the name of limited rationality as identified in Chapter II, making decisions by using (irrational) line-item budgets, together with incremental budgeting, may still be a better option than making no decisions at all under rational budgeting if the participants run out of time by trying to reach a comprehensive agreement and understanding alternatives, purposes, costs, benefits and their interrelationships. The potentially immense complexity and the political nature of decision making would probably mean, that in the real world, there would never be a

budget structure that would completely satisfy rational decision making in the sense of the criteria used in the analysis, especially if the budget is designed primarily for the purposes of control and operates in an political environment. However, if there were, such a budget structure would probably be very unstable, because every time there is a change in policy or environment, the budget structure should also change, and this seems to make it unrealistic, because setting up a budget structure is a lengthy process.

However, the next chapter proposes some ways to structure budgetary information for internal decision-making purposes in the MoD's sphere of administration that would score better at satisfying the analytic criteria used in this chapter.

VI. RECOMMENDATIONS

A. INTRODUCTION

The previous chapter identified the shortcomings of the current budget structure regarding whether it supports rational decision making in MoD/high military levels of command. The purpose of this chapter is to propose some alternative ways to structure budgetary information that could theoretically help in making better rational decisions and to discuss their strengths and weaknesses.

Although the current line item budget scores poorly at satisfying the criteria for rational decision making, there is little hope of completely giving up this format. Its simplicity, stability over time and universal applicability to all ministries and other state institutions, makes it a desirable format for the Ministry of Finance since it must compare the expenses of *all* major state institutions regardless of the purposes they serve. The function of control that the current budget format supports is also an extremely important function of the state, including the MoD itself. Therefore, it is unlikely that the existing laws and regulations requiring the usage of a line-item budget will be changed. As the MoD has to comply with the existing laws and regulations, the line-item budget is here to stay.

That being said, does it mean that the MoD must give up attempts to have a better budget format for internal decision making in its sphere of administration? Absolutely not! Chapter II identified the possibility that several budget formats may coexist at the same time given that the rules on how to crosswalk one budget format into another have been specified. Chapters II and III also identified that the format of a program budget or

programming, with the possible inclusion of ZBB elements, is the most suitable for making rational decisions at the top level of organizations. Taking this into consideration, the challenge of developing a budget format for rational decision making translates into developing a good program structure and linking the line items, such as the budget chapters and articles, with the programs.

B. SELECTING THE PROGRAM STRUCTURE

Chapter II identified a broad guideline on how to define a program. A program is a broad objective consisting of elements with similar functions, which compete with each other for funding from the program. Chapter III identified that a program should produce end products rather than objects or intermediate products, although the distinction is often ambiguous and depends on the perspective. Similarly as in Chapter III, if it is assumed that the end product of defense is the security of the nation, then it is correct, but too general for analytic purposes. Therefore, this broad purpose must be further translated into meaningful elements. There are different ways to do that. The next sections present alternative ways for linking the budget with its intended outputs and assesses their strengths and weaknesses.

1. The First Alternative: Programs Based on Wartime Forces

This alternative assumes that the wartime forces, such as the units formed on the basis of both peacetime units and the mobilized reserves, are the end outputs of the defense budget. In this case, different wartime units or their groups would be labeled as programs. In Estonia, developing two infantry brigades, the territorial defense forces and augmentation forces would then be the major programs of the Army, air surveillance, rapid reaction forces and air defense the major programs of the Air Force and Mine Warfare the major program of the Navy. If more forces would be developed in the future

and developing the above mentioned units was only the mid-term goal and not a goal for the indefinite future, they would simply be defined as new programs.

Linking the budget chapters and articles with these programs would then require identifying how much the existing peacetime units contribute to these programs and, as the next step, allocating the budgets of peacetime units and other expenses to these programs according to some rules of thumb. An example of how this could be done is given next.

Program 1: First Infantry Brigade

Program element: Second Infantry Reserve Battalion

Who: Second Training Battalion of the Army (a peacetime unit that trains personnel for this wartime unit), other peacetime units that have a role here.

The costs incurred by all peacetime units having a role in preparing this battalion would be presented in the budget tables described next. These tables would then summarize all costs, direct and indirect, that are incurred directly in the peacetime units to prepare this wartime battalion as a program element of Program 1 or are allocated to this program according to some rules of thumb:

From the operating budget of a peacetime training unit	FY2001 (i.e. future year)	FY2002	FY200X
10 Personnel Costs			
21 Social Tax	XXX	XXX	XXX
22...	XXX	XXX	XXX
26 Aids	XXX	XXX	XXX
27 Compensations			
...			
30 Maintenance costs			
31...			
...			

These articles would summarize expenditures from the operating budget of this peacetime training unit that provides training to Second Infantry Reserve Battalion. The costs could be allocated on the basis of a "fair share".

Table 1. Costs from Operating Budgets of a Peacetime Unit (Second Infantry Reserve Battalion, Program 1).

If a peacetime unit has a role in several programs at the same time, then its budget would be allocated among all those programs. Table 1 covers only one program element of the first program. Similar tables would be prepared for peacetime units other than for training if they have a role in this program, but they are not presented here. Different alternatives, for example, different ways to prepare this wartime unit, could be prepared here that would then compete for funding. This alternative that scores best could then get funded given the available capacity in the winning peacetime units that contribute to the winning program. Regarding training, different alternatives could be prepared, such as what skills are taught and length of training.

Special Equipment and Military Clothing for training	FY2001	FY2002	FY200X	These articles would summarize these expenditures from Chapter 91 that are incurred by providing training to this wartime unit or are allocated by some rules of thumb
Chapter 91 Special Equipment and Military Clothing	xxx	xxx	xxx	
46x Ammunition	xxx	xxx	xxx	
46x Military Clothing				
46x...				

Table 2. Special Equipment and Military Clothing for Training (Second Infantry Reserve Battalion, Program 1).

Table 2 would then summarize costs from Chapter 91 of the defense budget that would be incurred for training in this program or program element.

Special Equipment and Military Clothing for Mobilization Reserve	FY2001	FY2002	FY200X	These articles would summarize these expenditures from Chapter 97 that are incurred by preparing mobilization reserve for this wartime unit
46x Ammunition				
46x Military Clothing				
46x...				
...				

Table 3. Special Equipment and Military Clothing for Mobilization Reserve (Second Infantry Reserve Battalion, Program 1).

Obviously, a wartime unit is not complete if it is trained, but not equipped. Table 3 summarizes the costs for procurement of these supplies.

Investments for Second Infantry Reserve Battalion	FY2001	FY2002	FY200X	These articles would summarize these expenditures from Chapter 97 that are incurred by developing or maintaining this program element (wartime unit) directly or are allocated to it according to some rules of thumb
Chapter 97 Investments				
73 Capital Repairs				
73x				
76 Procurement of Immovables				
76x Construction of the Mobilization Depot				
77 Procurement of Movables				
77x Transportation vehicles				

Table 4. Investments (Second Infantry Reserve Battalion, Program 1).

Other costs for Developing This Wartime Unit 37 Information Technology 37x ...	FY2001	FY2002	FY200X

Table 5. Other Costs (Second Infantry Reserve Battalion, Program 1).

Procurement alternatives could be presented for each type of major equipment, object of infrastructure and supplies like ammunition. Their life-cycle costs would be presented in, and allocated among, these wartime units (=programs) to whose development they are contributing.

The existing budget articles identify only the type of budget inputs such as salaries or maintenance costs regardless of their purposes. The new program format would take the existing articles like salaries, fuel and maintenance costs and scatter them among the programs or even program elements, for example, purposes. To keep track of these changes and to allow for showing the linkages between line items and programs, giving additional codes to the already existing budget articles would be advisable. For example, all personnel cost articles that are allocated to the Program 1 (1st Infantry Brigade) could be designated as follows:

Current Budget Articles	Proposed Budget Articles
10 Salaries and Wages	10-139 Salaries and Wages of Program 1
11 Salaries of Public Servants	11-1 Salaries of Public Servants for Program 1
111 Base Salary	111-1 Base Salary for Program 1

Table 6. An example of the New Codes for Current Budget Articles.

39 The new codes would not just add more digits to the existing ones, but also separate the old and new code parts with a “-“. This would facilitate the recognition of which articles are necessary to comply with the existing regulations and which are not, and ensures that the old and new article codes would not interfere with each other. For example, adding one more digit to the already existing article 11 Salaries of Public Servants for Program 1 (i.e. 111) would confuse it with an already existing article 111 Base Salary. 11-1 Salaries and Wages for Program 1 would be the correct code.

Those parts of the current budget articles or chapters that belong to other programs would receive similar codes like 10-2 Salaries and Wages for Program 2. Using these codes, the costs of different programs can be aggregated at the desired level of detail and wherever incurred in the administrative structure. Separate codes could be developed for every program or also for every program element although the latter would make the classification very complex.

There are a number of organizations and budget chapters that are not directly related to the preparation of any wartime military units, yet their costs would also have to be allocated to the wartime units, if the latter are considered as the only end use outputs of the defense budget. An example of such organizations would be the MoD, Military Educational Institutions, Central Depots, Defense attaches etc. Their costs could also be allocated to the Other Costs (Table 5).

In form of concrete steps or rules, the process of creating this type of a budget could be summarized with the following steps:

- Identifying the wartime units as budget outputs and labeling them or their groups as programs
- Identifying how much the peacetime units contribute to the preparation of wartime units
- On the basis of their contribution to programs, allocating the budgets of peacetime units among the programs
- Identifying costs outside of the budgets of peacetime units
- Identifying how much these costs contribute to different programs
- On the basis of contribution, allocating these other costs among the programs
- Preparing alternatives and identifying their costs and contribution
- Selecting the best alternative for every program and translating their costs into conventional budget format for the Ministry of Finance.

Such classification could formally satisfy the most important criteria for rational decision making. By projecting the budget several years ahead, the total costs of a program could be assessed as well as future cost implications of current decisions. Different peacetime units could compete for funding by presenting their budget proposal for the given objective: developing wartime units. This means there would be alternatives. Besides, making tradeoffs between developing an infantry brigade and air surveillance or between air surveillance and territorial forces would be much more meaningful than making tradeoffs between salaries and insurance costs or between maintenance costs of vehicles and new construction. The wartime forces would represent achievement outputs and the budget articles the resource inputs, between which then a cost – effectiveness analysis could be carried out. In this sense, such a general program structure would theoretically satisfy the abstract criteria for rational decision making as identified in Chapter II. Yet, such a program structure also has two serious shortfalls.

First, it assumes that the wartime forces are the only outputs of the defense budget and their development is the only mission of the strategy that would neglect a wide range of other missions⁴⁰. This is a serious problem for alternative one as it would not satisfy the specified version of Chapter II criteria as identified in Chapter V.

The second problem is related to the practical implementation of such a program structure. The aforementioned example did not yet specify all the costs for one program: developing a wartime infantry brigade. Yet even this small incomplete example shows the extreme complexity of this approach and its dependability on a number of

⁴⁰ Technically, developing forces is not a mission at all, but rather a response to the missions.

assumptions. For example, the budgets of the existing training units have to be allocated among different programs, mainly training personnel for different wartime units. This would be the first and relatively easy step, if it were known in advance how many personnel this training unit has to train in a given year, to which wartime units these people will be assigned, and if the number of personnel trained is the main cost driver of the budgets of the training units. The problem is that although the training units could know the number of personnel they have to train, the other assumptions are often likely to be unrealistic. Currently the training units can also train personnel who are not yet assigned to a particular wartime unit. Although the operating budget of the training units depends also on the number of personnel trained, a number of costs, especially of maintenance, would be incurred regardless whether the unit is training one or five hundred personnel in a year. Finding an adequate rate for allocating these maintenance costs among different programs would be very difficult.

Allocating some other, mainly direct costs, outside of the operating budgets of training units, for example, costs for ammunition or clothing and procurement costs for mobilization reserves, to wartime units could theoretically also be relatively easy. However, this is true only if it is known in advance for which exact programs or wartime units the procurement is made. This may or may not be the case. If it is not, then the resources cannot be allocated. Furthermore, there are a number of peacetime organizational units in defense that are not directly involved in developing any wartime units, but may still have important functions. Examples could be the MoD, Military Educational Institutions, Central Depots and military orchestra. If the wartime units are the only outputs of the defense budget, they must carry a huge number of allocated costs

from all such organizations that have little or nothing in common. Figuring out the correct allocation rate and doing such allocations would also be an extremely difficult exercise. To overcome the aforementioned problems, an alternative program structure is offered next.

2. The Second Alternative: Programs Based on Missions of the Strategy-a Detailed Approach

The central assumption of this alternative is that carrying out the missions of the strategy is the final output of the defense budget. The missions of the EDF were grouped into packages in Chapter IV and these packages were also used in the analysis in Chapter V. The next logical step would then be defining these packages as programs, developing specific output measures for these packages, and allocating the defense budget, both the operating budget of peacetime units and other parts of the defense budget, among programs on the basis of those output measures. This alternative follows a rather orthodox approach that would go into deep levels of detail in separating all costs between packages. If an expenditure like maintenance costs of buildings, wherever occurred, has even a slightest role in contributing to some output measures, then it must be allocated among all of them.

The next section gives a list of which peacetime units could contribute to different programs and suggests some output measures. Since there are no official guidelines about how to do this, the following classification is purely the judgment of the researcher.

Program 1: Training and Education

Possible output measures: number of personnel or units trained/educated, or trained/educated personnel who pass the subsequent tests.

Contributors:

Military Educational Institutions, including BALTDEFCOL (its main mission)
Six infantry training battalions (their main mission)
Air Defense Training Battalion (its main mission)
Defense League field units (their main mission)
Other field units from all services (their secondary mission)
National Defense Departments (secondary mission: calling conscripts and reserve into service for training)

Program 2: Readiness

Possible output measure: number of days to achieve the predetermined level of readiness

Contributors:

BALTBAT (its main mission)
Air Force rapid reaction capability (main mission)
All other units, i.e. keeping them at certain readiness levels (their secondary mission)

Program 3: Alliances and partnerships

Possible output measures: predetermined capacity to participate in peace operations and international exercises, predetermined host nation support (HNS) capabilities (e.g. number and types of allied aircraft/ships to which HNS can be offered)

Contributors:

Peace Operations Center (its main mission)
Defense attaches (not in the strategy, but a convenient place to put this money)
Estonian representatives to NATO (not in the strategy, but a convenient place to put this money)
BALTRON (some role)
BALTNET (some role)
Airbase (for host nation support)
Naval base (for host nation support)
In the sense of participating in international operations, all military units and organizations of MoD have a role

Program 4: Mobilization and Deployment

Possible output measure: days needed to mobilize and deploy

Contributors:

National Defense Departments (main mission)
All other units have a role in this package

Program 5: Wartime operations

Possible output measures: availability of supplies (in terms of days) like of ammunition, of fuel etc., given a particular scenario. From a more war fighting side: response time to foreign provocations.

Contributors: No peacetime military unit is directly connected with this program, but this is the main mission of all wartime units. Because the funds for peacetime operations and for mobilization/deployment are already included into other programs, the financial side of this program would in the most part consist only of funds for procurement and maintenance of

wartime reserve materials like ammunition, fuel and their storage (especially construction and O&M costs of mobilization depots) to avoid double counting of funds. The nonfinancial description of the program could add additional information about the purpose and conduct of operations and other measures like response time to foreign provocations, type and extent of operations the forces are capable of conducting, types and quantities of forces provided etc.

Program 6: Defense Support to Civil Authorities

Possible output measure: number of units capable of this kind of support, predetermined support capacity

Contributors: Many units funded from the defense budget could contribute to this program, but it would always be their auxiliary mission.

Program 7: Monitoring and Control over Airspace and Territorial Waters

Possible output measures: area coverage, predetermined capacity to intercept violators, for BALTRON: capability to clean/lay sea mines.

Contributors:

BALTNET (main mission)

BALTRON (main mission)

Other naval and air force units as contributors

Table 7. Description of Programs.

There are a number of other organizational units in the MoD's sphere of administration that could not even remotely be identified with any particular program, mainly in the field of command and support like the MoD itself, the General (Joint) Staff, the service staffs, the central depots and other support units such as the military orchestra. The orthodox allocation rules would require allocating their budgets among the existing programs, because the programs should cover all missions and all funds. Yet this would only add to the complexities and the allocation rates would be extremely difficult to determine. It would also almost certainly not offer better decisions, because the expenditures of these organizational units for the most part do not vary with any activity in the programs. Allocating their budgets among the existing programs could create the illusion that, for example, if a decision is made to reduce the host nation support capability or the number of units trained, then the budgets of the MoD, General (Joint) Staff and of other units in that list could also be reduced on the grounds of diminished

workload. Therefore a better idea would be to create a new resource program for them rather than allocating their costs among all programs. This additional program is the “all other” category that has no direct link with the missions, but would still be necessary for almost everything and include then the rest of the still unallocated funds. It could be called “General Command and Support” (Program 8).

After identifying the relationships between the programs and their contributors, the next step would be determining the extent to which different organizational units contribute to different programs. On the basis of such an analysis, the broad allocation rules would be developed and the operating budgets of all organizations would then be allocated among the programs.

The final step would then associate the budget chapters and articles outside of the operating budgets of the units with the programs.

A similar crosswalk explained under the first alternative by dividing the existing budget articles between programs and assigning them special codes would show the relationships between conventional budgets or budget articles and the programs. The difference between the previous and current alternatives is that the new article codes here would be based on the mission packages or the programs in this alternative, rather than on wartime units of the previous alternative. In summary, this alternative could be described with the following steps:

- Identifying the missions of the strategy
- Grouping them into meaningful packages, calling them programs and defining the output measures for every program (Programs 1-7)

- Identifying the individual units that contribute directly to one or several programs (Programs 1-7). The output measures defined in Step 2 determine contribution
- On the basis of contribution, allocating the budgets of these units among Programs 1-7
- Identifying the remaining units that have no direct relationship with the abovementioned mission-based programs and establishing the “all other” program for them
- Allocating the budgets of these units to the “all other” category
- Identifying the costs outside the budgets of units that can be directly associated with one or several program and allocating these costs to the respective programs
- Identifying all remaining costs and allocating them to the “all other” category.
- Preparing alternatives for different programs
- Selecting the best alternatives for every program

This crosswalk would also satisfy the criteria for rational decision making. Given that a sufficient timeframe is selected, it should be possible to see the total cost of a program with reasonable limits, of course. The budget chapters and articles would be linked with the output measurements through programs. This would facilitate the cost-effectiveness analysis, given that an agreement is reached about the relative importance of a particular program with comparison to its costs. Due to the multi-year perspective, the future cost implications of current decisions can be presented⁴¹. The programs themselves would also be much better alternatives than separate budget chapters or articles. A compromise between training volume and peacekeeping capability or between airspace control and capability to assist civilian authorities would be much more meaningful than compromises between salaries and maintenance costs of buildings or

⁴¹ Of course, this format allows the showing of the future cost implications of current decisions, but by itself, it does not calculate or predetermine what these implications are. If they are uncertain, then putting these costs into this framework will not make them more or less certain.

between procurement of ammunition and maintenance costs of vehicles or social tax. The compromises between different programs would be horizontal between different output types. There could also be vertical compromises in the spirit of ZBB, for example, when the alternatives show how much extra money would be needed to train one more unit, educate one more class of, say 30 officers or participate in one more international exercise. Finally, the programs would summarize the costs incurred for similar purposes regardless of where they are incurred.

As a result, this alternative budget presentation would also technically satisfy the criteria for rational decision making. It would also score better on the points that the previous alternative did not. The current alternative considers all major missions of the strategy, not just developing wartime forces, which is technically not even a mission in itself, but rather the response to the missions. However, this budget structure has the same serious shortfall as the previous one. Its complexity and ambiguity makes the implementation unlikely even after putting the command and support units into the “all other” program. There would be a huge problem on how to allocate the operating budgets of an existing unit if the same unit is contributing to several programs at the same time in the situation where a large portion of its budget is just needed to keep this unit intact regardless of what it does, especially for costs related to general maintenance. Therefore, even if the second alternative is better than the first, it must be simplified. This is done in the third alternative that is presented next.

3. The Third Alternative: Programs Based on Missions of the Strategy- a Simplified Approach

The most important difference between this alternative and the previous alternative rests on the assumption that most organizations have one major mission or

function, although they may also contribute to several other missions. This then determines all other differences between alternatives two and three. In this context the major mission would be a particular program and other missions would be other programs. After identifying the major program of an organization, this alternative then identifies all costs of this organization that are needed for just keeping it intact, but idle, and allocates them to the major program of the organization or unit⁴². These costs could be called basic maintenance costs⁴³. The assumption behind this approach is that if the major program of an organization did not exist, there would be little need to preserve this organization. Although this would not be absolutely correct, and there would be several programs that would not have even a single unit of their “own”, this approach would significantly reduce the complexities of cost allocation among programs. This is important, because otherwise, the complexities would probably suffocate the system as often happened with the efforts to introduce ZBB or PPBS as was identified in Chapter II. After allocating these basic maintenance costs of a unit to its major program, all other costs are allocated on the basis of actual contribution to different programs. In practice, however, most of the operating budgets of the units would be allocated to their major

42 In contrast, alternative two does not make such a distinction, but allocates *all* costs incurred in individual units on the basis of the determined contribution (output) measures. Alternative three excludes the aforementioned costs from the pool of costs that are allocated on a basis of actual contribution, and allocates these basic maintenance costs of a unit directly to its major program regardless of those contribution measures. Only in the next step, will the remaining costs be allocated on the basis of actual contributions.

43 The basic maintenance costs would not necessarily be equal with maintenance costs in the sense of Article 30, because this article includes all maintenance costs that are incurred regardless whether they are incurred in everyday activities or by keeping the units intact, but idle. For example, article 30 includes the maintenance costs of vehicle repairs in the units (or organizations) that are needed for all vehicle repairs, whereas most of them would not be incurred if the units did not operate. The basic maintenance costs could also include costs outside of the operating budgets of units like costs for infrastructure repairs or construction, if these costs are necessary to preserve the unit. In practice, detailed rules must be created and negotiated that would be sufficient for the accountants/budgeters for their everyday work.

program. This is because the basic maintenance costs of a unit plus direct costs associated with its actual contribution to its major program usually comprises the bulk of its budget.

For example, for Program 1 (Training and Education), there are two major groups of units that would have their major mission here: the training battalions of the Army and the Military Educational Institutions. Therefore, their basic maintenance costs would be allocated to Program 1. Then other costs that are usually directly or indirectly associated with training or education would then also be allocated to Program 1 as the next step. An example of direct training costs would be the costs of catering. An example of indirect training costs would be the salaries of instructors, or transportation costs that are incurred by training. These training costs could be avoided if no training took place, but they do not generally vary much with the number of people trained. An example of a basic maintenance cost of training units would be the maintenance of vehicles, and maybe of buildings that are not directly used by training, but are still necessary to keep the unit running. In other words, the costs of construction or maintenance in the sense of Article 30 would normally not be included in the training costs, because they are already included in the basic maintenance costs, because most of the buildings must be maintained irrespective of what the people are doing inside them. At the same time, although this would not be their main mission, the training units and institutions also contribute to other programs: they must be kept at a predetermined level of readiness (Program 2), they have a role in mobilization (Program 4) and in war (Program 5) and eventually, they could assist civil authorities (Program 6). If some extra resources were needed in training/educational organizations to contribute to these programs, then these and only these funds would be allocated to other programs. Clearly, the volume of these

funds is relatively limited. If the same weapon or vehicle that is necessary for contributing to these additional programs is also usually used in everyday training, its cost will be included in Program 1 and not in some other program. However, if the total number of weapons, vehicles, buildings or the total amount of fuel that is associated with a particular unit must be kept at the level above of the needs of Program 1, then these additional funds would be allocated to the other programs.

For Program 2 (Readiness) there are currently only a few units that have readiness as their main mission: the BALTBAT and the rapid reaction capability of the Air Force. Their basic maintenance costs would then be assigned to this program. Obviously, the same units also have a role in mobilization, in war, in international operations and elsewhere, but only the incremental costs in BALTBAT and the Air Force needed to contribute to other program would then be allocated to other programs.

Considering other examples, Program 4 (Mobilization and Deployment) has only the National Defense Departments as its major units, although even here one could argue that the main mission of these organizations would be assisting in the training of conscripts and reservists. At the same time, mobilization is a very essential mission for all units, but most of the their budgets would still be allocated to other programs. Nevertheless, the program could describe how all units are planning to carry out their roles in mobilization, even if most of their budgets would be allocated to other programs to avoid the double counting of funds⁴⁴.

⁴⁴ This is just another example that illustrates how the requirements identified in Chapter III, that programs should be collectively exhaustive and mutually exclusive, and set some limits on how the actual resource allocations can be made among programs.

Some programs, Program 5 (Wartime Operations) and Program 6 (Defense Support to Civil Authorities), are unique in the sense that they have no “own” units financed from the defense budget⁴⁵ and consequently they do not have any basic maintenance cost of peacetime units allocated to them. Therefore, the financial volume of these programs could be theoretically more limited than most of the other programs. However, given that huge wartime reserves may be needed that have no use in peacetime, the fifth program could include funds for their procurement and maintenance. This could mean that substantial funds are included in Program 5, for example, if some mobilization depots are built then the costs of their construction and subsequent maintenance would be included here. For the most part, this program would thus include funds outside of the operating budgets of the organizational entities (units), as the funds of the operating budgets of peacetime units are already included elsewhere. Similarly for the second alternative, the nonfinancial description of the contribution of units to this program would then include some more warfighting measures, not just logistical or supply measures that can be directly associated with resources.

Generally, similar steps used to summarize the previous alternative could characterize the third alternative, because this alternative is just the modified version of the second. Its steps would include:

- Identifying the missions of the strategy
- Grouping them into meaningful packages, calling them programs and defining the output measures for every program (Programs 1-7)

⁴⁵ In the case of Program 6, the rescue operations are the main mission of the Rescue Service that obtain funding from the budget of the Ministry of Interior's Sphere of Administration.

- Identifying the individual units that contribute directly to one or several programs (Programs 1-7). The output measures defined in Step 2 determine contribution
- Identifying the major program for each unit mentioned in Step 3
- Identifying the basic maintenance costs in each organizational unit and allocating them to their major programs
- Identifying costs other than basic maintenance costs in the budgets of the units mentioned in Step 3 and determining their relationships with Programs 1-7
- On the basis of contributions to Programs 1-7, allocating all these costs among these programs
- Identifying costs outside the operating budgets of the units mentioned in Step 3 that are directly related to Programs 1-7
- Allocating those costs to the programs on the basis of contributions
- Identifying the remaining units, that have no clear linkage with Programs 1-7
- Identifying their costs, both inside and outside of their operating budgets and allocating these costs to the “all other” category, the Program 8 (General Command and Support) until they can be classified into more meaningful categories
- Preparing alternatives for different programs
- Selecting the best alternative for every program

Since alternative three is just a simplified version of the previous one, it has similar advantages and disadvantages. However, it is simpler to do, because there is no need to allocate the basic maintenance costs among different programs which would be very arbitrary. Therefore, this is the best of the three alternatives for linking the budget with the missions.

The disadvantage of complexity and ambiguity of the previous alternative is reduced, but even after taking this into consideration, it is still much more difficult to do than the current budgeting practice where all salaries, maintenance costs, costs for procurement and other line items are simply collected together and presented as a budget

proposal. It also requires clear operational instructions about what goes into basic maintenance costs and what does not. Another complexity arises from the need to define clear rules for measuring the contribution of different units to different programs necessary for resource allocation. These questions do not arise by only using the traditional line item budgets, because the traditional budget simply ignores them. In this sense, even this simpler alternative may become too complex to be implemented in reality.

Yet if successful, this kind of budget classification would significantly facilitate rational decision making at the top of the Estonian defense establishment by offering a much better linkage between the missions and the budget resources; a linkage that is currently missing in the budget.

C. CONCLUSION TO CHAPTER VI

The chapter discussed three alternative ways to structure the budgetary information in a way that would support rational decision making by implementing the missions of the strategy and broad goals of development. It found that although all of these alternatives would theoretically satisfy the criteria for rational decision making, the third alternative would be the best of them, because it focuses on all missions, not just forces and is also less complex and less arbitrary than the previous alternatives. However the chapter concluded that structuring budgetary information according to the relative simple and clear rules of the third alternative, as compared to the other alternatives, would still be much more complex and therefore more difficult to do than using the rules of the currently used line item budgeting. If this programming is done and used by a handful of analysts alone, it will probably disappear soon regardless how useful or

useless it is. To give this approach a chance of survival, its format should become the basis on which the ministerial planning guidance and other planning documents mentioned in Chapter IV will be composed in the future.

The last chapter gives concluding remarks and suggests some areas for further research that must be done before any of these alternatives could be implemented in practice.

VII. CONCLUSION

A. PROBLEM SUMMARY

The first chapters of the thesis discussed the linkage between budgeting, budget structure and decision making and identified the abstract criteria a budget structure should meet to support rational decision making. The thesis discussed different budgeting approaches and the budget formats these approaches used. As a result of the discussion, a mission-based program budget format emerged as the most suitable budget format for making rational decisions.

The next chapter summarized the current planning and budgeting framework of the Estonian defense. In particular, they focused on the missions of the Armed Forces as defined by the recently adopted Estonian military strategy and on the current defense budget structure. Then, the thesis discussed the abstract criteria of rational decision making and if they were relevant for the Estonian case. Their content was further specified for Estonia.

The subsequent analysis of the Estonian budget structure yielded two major results: one positive and one negative. On the positive side, the current budget is good at fulfilling one major function of budgeting: control. The control function focuses on ensuring that the funds are spent only on those objects of expenditure that were allowed by the Parliament regardless of their purposes and that the limits established in the budget accounts are not overspent. These functions are important for preventing fraud and ensuring the solvency of the state. However, on the negative side, the current budget

structure scored poorly at supporting rational decision making as specified by the selected criteria.

B. SUMMARY OF RECOMMENDATIONS

Taking the results of the analysis into account, the thesis discussed three alternatives of structuring budgetary information, each of which would score better at satisfying the criteria mentioned above. None of them prescribed abandoning the current line item budget, but rather proposed adding another layer of budget formats to the already existing line items. This additional layer establishes the crosswalk between budget inputs and outputs (purposes), but because the old budget format would also be maintained, it would not violate existing laws and regulations. The first alternative, the program structure based on the planned or existing wartime force structures alone did not find adequate support, because this structure would ignore a number of missions of the strategy and its extreme complexity and arbitrary allocation rules would make it very difficult to implement. The second alternative addressed the first problem by proposing a program budget based on all major mission types, but it still had the problems of ambiguity and complexity. Finally the third alternative, a somewhat simplified modification of the second alternative, emerged as the superior option of the three alternatives. However, even this simplified alternative would be more complex than the current budget that is based only on line items.

C. SUGGESTIONS FOR FURTHER RESEARCH

The thesis touched the political nature of decision making in several places, but it did not specifically address this issue for analytic clarity and for the need to keep the topic manageable. However, the decision making in the real world is likely to be at least as political as it is analytical. Therefore, even if the discussed modifications to the current

budget structure, including the recommended third alternative in Chapter VI, satisfy the analytic criteria for rationality, its implementation may not be advisable if it does not allow political irrationality or political rationality to operate. Therefore, further research is advisable to test whether the proposed changes can survive in a political environment.

There is a second area that needs further research: the implications the proposed changes have on the current accounting system in Estonian defense. If the accounting system does not support the proposed changes then they do not make much sense. In this case the existing system has to be modified or the changes abandoned. In particular, the thesis proposed splitting the existing budget articles among programs and creating new codes for them. This means more work for budgeters/accountants and potentially lengthy discussions between them and the decision makers and planners before the proposed changes can be defined on the level of detail where the budgeters/accountants have clear instructions for their detailed work. The existing procedures and accounting software, may need modification and new skills may have to be developed for example, how to split a budget article between basic maintenance costs and costs specifically attributable to programs. All this requires time and money and the costs of making these changes have to be compared with the expected benefits so that the decision makers in MoD, but also in the General (Joint) Staff, would have a comprehensive picture before making a decision about possible implementation of the proposed changes.

Going further, some research could be conducted to identify additional incentives, other than facilitating rational decision making, for implementing the changes. For example, if the proposed changes would allow presenting the financial needs of the defense in a more defensible format for the MoD in its “battle” for its share of the state

budget, it would give a strong incentive to implement these changes. Research should also investigate whether the recommended third alternative could further be simplified to decrease its complexity and hence costs for its implementation without losing its focus.

APPENDIX A. AN EXAMPLE OF A ZERO-BASED BUDGET FORMAT

City of Wichita, Kansas																																															
Decision Unit	<p style="text-align: center;">TEAM POLICING</p> <p>ADAM AND BAKER TEAM POLICING <i>Budget Unit Goal:</i> To protect life and property, prevent crime, respond to all calls for service from citizens, enforce City ordinances, State and Federal laws, investigate and follow-up assigned cases and improve response time.</p> <p>Year 1978 Budget (000): 4,335.1 millions of \$ Positions: 292</p> <p>1979 Service level options</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">No.</th> <th colspan="2">Cost (000)</th> <th colspan="2">Positions</th> <th rowspan="2">Dept. rank</th> <th rowspan="2">City rank</th> </tr> <tr> <th>S/L</th> <th>Cum.</th> <th>S/L</th> <th>Cum.</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>3,878.6</td> <td>3,878.6</td> <td>262</td> <td>262</td> <td>1/60</td> <td>2</td> </tr> <tr> <td>2.</td> <td>335.9</td> <td>4,215.5</td> <td>26</td> <td>290</td> <td>3/80</td> <td>7</td> </tr> <tr> <td>3.</td> <td>272</td> <td>4,342.7</td> <td>2</td> <td>292</td> <td>18/80</td> <td>148</td> </tr> <tr> <td>4.</td> <td>148.9</td> <td>4,391.6</td> <td>18</td> <td>310</td> <td>37/80</td> <td>PSP</td> </tr> <tr> <td>5.</td> <td>163.4</td> <td>4,555.0</td> <td>12</td> <td>322</td> <td>46/80</td> <td>343</td> </tr> </tbody> </table> <p>Service level narrative</p> <p>1. <i>Quality Reduction and Increased Citizen Risk.</i> Provides service to the citizens in emergency situations and the officers would respond to cases of a less serious nature. Response time will average 12 minutes per call. This level calls for 256 commissioned officers, 6 civilians, 66 marked (blue and white) vehicles, and 27 unmarked vehicles. These officers provide 24-hour police service to the citizenry. Investigative follow-up and crime scene processing is curtailed.</p> <p>2. <i>Minimum Preventative Patrol.</i> Provides twenty-seven commissioned officers and one clerk typist, who are needed to provide beat officers to answer citizen request calls with a 2 minute per call reduction in the response time from 12 minutes to 10 minutes.</p> <p>3. <i>Interaction with USD #259.</i> Provides for the reinstatement of two school liaison police officers who coordinate programs in the schools in two of the team policing areas. At this level, a school liaison officer will be available in each of the six team policing areas.</p> <p>4. <i>Adds Eighteen Police Officers to Reduce Response Time.</i> Adds eighteen police officers to provide coverage in the patrol function for vacations, emergency leave, in-service training, and back-up officers. At this level, response time for calls will be reduced from 10 minutes to 9 minutes per call. Positions are funded effective 1 April 1979 (9 months). Costs include \$136,049 for salaries and \$12,818 for initial uniforms and equipment.</p> <p>5. <i>Improved Supervision and investigation.</i> Adds six detectives to insure more follow-up investigations, to accelerate the investigation process, and to improve clearance percentage; and six lieutenants to provide quality control through supervision and shortened span of control.</p>	No.	Cost (000)		Positions		Dept. rank	City rank	S/L	Cum.	S/L	Cum.	1.	3,878.6	3,878.6	262	262	1/60	2	2.	335.9	4,215.5	26	290	3/80	7	3.	272	4,342.7	2	292	18/80	148	4.	148.9	4,391.6	18	310	37/80	PSP	5.	163.4	4,555.0	12	322	46/80	343
No.	Cost (000)		Positions		Dept. rank	City rank																																									
	S/L	Cum.	S/L	Cum.																																											
1.	3,878.6	3,878.6	262	262	1/60	2																																									
2.	335.9	4,215.5	26	290	3/80	7																																									
3.	272	4,342.7	2	292	18/80	148																																									
4.	148.9	4,391.6	18	310	37/80	PSP																																									
5.	163.4	4,555.0	12	322	46/80	343																																									
Decision Packages (reflect contingency budgets—different funding scenarios)																																															

Note: S/L=Service level

Cum-Cumulative (including service levels below the line)

Dept. rank -Department head's rank of the service package/total number of service packages in the Police Services Department (all decision units combined)

City rank -Executive's rank of the service package out of all service packages forwarded by all City departments for their service units

PSP=Postponed; not ranked

Source: Adapted from Richard Aronson and Eli Schwartz, *Management Policies in Local Government Finance*, 2nd Ed. Washington, D.C.: International City Management Association, Figure 5-10, P 112.

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APPENDIX B. LINE ITEM BUDGET FORMATS

1. Summary Format

ALL OPERATING FUNDS SUMMARY OF EXPENSE BY OBJECT (\$000 omitted)					
	Actual 1990	Actual 1991	Budget 1992	Estimate 1992	Budget 1993
Personal Services	72,300	77,220	79,160	79,931	83,806
Employee Benefits	25,174	27,437	29,595	30,204	31,931
Services	63,722	67,889	72,340	69,914	70,940
Commodities	9,401	8,843	11,152	10,627	10,805
Capital Outlay	5,668	5,736	5,291	6,410	5,306
Transfers:					
Between Operating Funds	7,983	8,179	7,965	7,991	6,017
To Capital Project Funds	8,594	13,622	10,130	10,130	9,922
To Debt Service Funds	9,660	8,774	9,536	7,722	7,241
To Reserve Accounts	304	2,404	343	3,193	1,351
To Other Funds	2,490	1,879	2,235	1,969	1,841
Other	(306)	0	380	0	0
TOTAL	204,990	221,963	228,128	228,091	228,960

These definitions allow the reader to quickly identify types of expenditures presented in the table above without having to refer to a glossary.

DEFINITIONS:

PERSONAL SERVICES: Services rendered by full-time and part-time employees to support the functions of City departments. Costs include salaries, overtime, shift differentials, and other direct payments to employees.

EMPLOYEE BENEFITS: Contributions made by the City to designated funds to meet commitments of obligations for employee fringe benefits. Included are the City's share of costs for Social Security and the various pension, medical, and life insurance plans.

SERVICES: The requirements for a department's work program which are provided by other entities—either outside vendors and contractors or other City departments. Examples are the costs of repair and maintenance services (not materials); utilities; rentals; and charges from City Internal Service Funds.

COMMODITIES: Expendable materials and supplies necessary to carry out a department's work program for the fiscal year. Such items as repair and maintenance materials, chemicals, agricultural products, office supplies, small tools, and merchandise for resale are included.

CAPITAL OUTLAY: The purchase, acquisition, or construction of any item having unit cost of \$100 or more, or a useful life of one or more years. Typical capital outlay items include vehicles, construction equipment, typewriters, computers, and office furniture.

Note: This summary presents expenditures by major objects as well as interfund transfers.

Source: Dennis Strachota, 1994. *The Best of Governmental Budgeting: A Guide to Preparing Budget Documents*, Chicago, IL: Government Finance Officers Association, Exhibit 3-13.

2. Detailed Line-Item Object of Expenditure by Account Format

GENERAL FUND
EXPENDITURE SUMMARY BY ACCOUNT

Account Code	Account Number	Account Name	1991-1992 Actual		1992-1993 Budget		1993-1994 Budget	
			Dollars	%	Dollars	%	Dollars	%
Personnel Services								
703000	Wages-Elected & Appointed	\$50,616	0.10	\$80,270	0.12	\$26,150	0.13	
704000	Wages & Salaries Permanent	20,671,787	41.55	21,896,400	42.95	22,202,070	42.42	
704001	Sick Time Buy Back	347,563	0.70	308,530	0.66	306,910	0.71	
704718	Wage Reimbursement-WC	(1,493)	(0.00)	0	0.00	0	0.00	
704721	Health Insurance Allowance	15,563	0.03	19,820	0.04	15,500	0.03	
705000	Wages-Salaries-Temp/Part time	749,431	1.51	694,080	1.38	704,210	1.35	
705001	Part Time/Temp - Non Permanent	63,096	0.13	68,720	0.13	29,500	0.55	
706000	Wages-Salaries - Occasional	47754	0.10	55,000	0.11	55,500	0.11	
708000	Overtime	1,535,053	3.09	1,419,740	2.79	1,521,240	2.91	
708001	Compensatory Time Buy Back	821,839	1.65	784,900	1.54	804,650	1.55	
708795	Overtime - F.L.S.A.	0	0.00	0	0.00	30,000	0.05	
710000	Longevity	853,848	1.31	692,890	1.16	620,150	1.18	
711000	Holiday Pay	477,153	0.96	530,580	1.04	514,500	1.01	
713560	Car Allowance	1,200	0.00	0	0.00	0	0.00	
714000	Food Allowance	61,817	0.12	72,000	0.14	72,000	0.14	
715000	Clothing Allowance	253,376	0.51	224,350	0.44	224,500	0.43	
717000	FICA	910,232	1.83	929,660	1.85	943,930	1.80	
717012	Medicare FICA	40,318	0.08	51,780	0.10	56,920	0.11	
718000	Worker's Compensation	634,540	1.28	285,990	0.55	351,920	0.62	
719000	Unemployment Compensation	12,098	0.02	13,570	0.03	14,500	0.03	
720000	Pension-General Employees Retire.	525,931	1.06	698,400	1.37	622,820	1.37	
720001	Pension-Police and Fire Retirement	3,174,410	6.28	3,300,540	6.48	3,691,610	7.05	
721000	Hospitalization	2,316,780	4.66	2,803,630	5.51	3,217,010	6.15	
721001	Hospitalization-Retirees	255,517	0.51	269,720	0.53	294,500	0.56	
721002	Retiree Medical-Police & Fire	265,818	0.53	334,850	0.66	457,910	0.87	
722000	Dental Insurance	371,867	0.75	420,970	0.83	403,930	0.77	
723000	Life Insurance	106,173	0.21	116,350	0.22	85,270	0.16	
724000	Eye Care Insurance	1,763	0.00	1,480	0.00	1,570	0.00	
725000	Disability Insurance	238,275	0.48	278,680	0.55	293,350	0.50	
Total Personnel Services			34,802,145	69.58	36,264,100	71.21	37,900,150	72.42

Note: This City's budget contained four object categories: Personnel Services, Other Charges, Capital Outlay, and Transfers Out. Only one category is presented here.

Source: Adapted from Dennis Strachota, 1994. *The Best of Governmental Budgeting: A Guide to Preparing Budget Documents*. Chicago, IL: Government Finance Officers Association, Exhibit 3-14.

APPENDIX C. EXAMPLE OF A PERFORMANCE BUDGET FORMAT

City of Fort Collins, Colorado																																																																																																																																																																																																				
CITY OF FORT COLLINS																																																																																																																																																																																																				
The program analysis highlights budget issues and changes in operations from the prior year. It includes information on a staffing reorganization.	PROGRAM 008301 PATROL SERVICES FUND 101 GENERAL FUND DEPARTMENT 800000 POLICE SERVICES																																																																																																																																																																																																			
Line-Item Format Line-item expenditures and transfers are presented for three budget periods.	PROGRAM MISSION To provide a full range of police patrol services, including crime prevention, traffic enforcement, traffic and community problem solving.																																																																																																																																																																																																			
Personnel Format Shows the mix of positions allocated to this program (e.g., hourly vs. volunteers).	PROGRAM ANALYSIS We will continue using alternative response methods, allowing prompt and effective response to citizen demands for service in the most cost-effective manner. We will continue to emphasize problem-oriented policing whereby issues are addressed through application of problem-solving efforts. Patrol Services Selective Enforcement Unit (SEU) will continue to concentrate on problem resolution within the community, and the Traffic Unit will continue to address traffic-related issues in 1993. In an effort to expand the application of problem-solving efforts the following changes will take place in 1993: The Records Lieutenant position will move to Patrol to coordinate problem-oriented policing efforts. In addition, the Crime Prevention Coordinator will move from Community Affairs to Patrol, and the Crime Analyst from Records to Patrol - both to be supervised by the Problem-Oriented Policing Lieutenant. For 1993, a DARE officer position has been added to this program.																																																																																																																																																																																																			
Revenue Format The source of financing for this program is also displayed.	EXPENDITURE <table> <thead> <tr> <th></th> <th>LAST ACTUAL 1991</th> <th>CURR ADOPTED BUDGET 1992</th> <th>REVISED BUDGET 1992</th> <th>APPROVED BUDGET 1993</th> </tr> </thead> <tbody> <tr> <td>PERSONAL SERVICES</td> <td>3,982,715</td> <td>4,019,690</td> <td>4,217,220</td> <td>4,492,928</td> </tr> <tr> <td>CONTRACTUAL</td> <td>857,202</td> <td>864,040</td> <td>803,724</td> <td>830,562</td> </tr> <tr> <td>COMMODITIES</td> <td>156,728</td> <td>186,639</td> <td>185,981</td> <td>181,975</td> </tr> <tr> <td>CAPITAL OUTLAY</td> <td>12,446</td> <td>0</td> <td>26,772</td> <td>0</td> </tr> <tr> <td>TRANSFERS/OTHER</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>TOTAL</td> <td>5,041,091</td> <td>5,070,369</td> <td>5,333,807</td> <td>5,505,465</td> </tr> </tbody> </table> <table> <thead> <tr> <th>PERSONNEL</th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>CLASS/UNCLSS</td> <td>82.00</td> <td>84.00</td> <td>84.00</td> <td>88.00</td> </tr> <tr> <td>SEASONAL</td> <td>.00</td> <td>.00</td> <td>.00</td> <td>.00</td> </tr> <tr> <td>HOURLY</td> <td>.00</td> <td>.00</td> <td>.00</td> <td>.00</td> </tr> <tr> <td>CONTRACTUAL</td> <td>.00</td> <td>.00</td> <td>.00</td> <td>.00</td> </tr> <tr> <td>VOLUNTEER</td> <td>.00</td> <td>.00</td> <td>.00</td> <td>.00</td> </tr> <tr> <td>TOTAL</td> <td>82.00</td> <td>84.00</td> <td>84.00</td> <td>88.00</td> </tr> </tbody> </table> <table> <thead> <tr> <th>REVENUE</th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>GENERAL FUND</td> <td>5,024,208</td> <td>5,070,369</td> <td>5,321,015</td> <td>5,505,465</td> </tr> <tr> <td>GRANT</td> <td>16,885</td> <td>0</td> <td>12,762</td> <td>0</td> </tr> <tr> <td>TOTAL</td> <td>5,041,091</td> <td>5,070,369</td> <td>5,333,807</td> <td>5,505,465</td> </tr> </tbody> </table> <table> <thead> <tr> <th colspan="5" style="text-align: center;">PROGRAM PERFORMANCE BUDGET</th> </tr> <tr> <th>PROGRAM</th> <th>008301</th> <th>PATROL SERVICES</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>OBJECTIVES</td> <td colspan="4">1. 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Note: In this city, the service format is used for all programs presented within the operating budget.

Source: Adapted from Dennis Strachota, 1994. *The Best of Governmental Budgeting: A Guide to Preparing Budget Documents*. Chicago, IL: Government Finance Officers Association, Exhibit 2-3.

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APPENDIX D. NON-DEFENSE PROGRAM BUDGET FORMATS

1. Aggregate for all Programs

CITY EXPENDITURES BY SERVICE AREA (PROGRAM)				
SERVICE AREA Department	ACTUAL 1991	BUDGET 1992	ADOPTED 1993	% INCREASE OVER 1992
ADMINISTRATIVE				
Administration	\$149,138	\$149,781	\$155,748	4.0%
Employee Development	4,148,114	5,220,301	5,510,717	5.5%
Finance	5,781,653	5,953,984	6,344,255	6.6%
General Services	5,688,288	6,351,566	8,737,459	37.6%
Information & Communication Systems	2,810,260	3,011,117	3,365,212	11.8%
TOTAL ADMINISTRATIVE	18,613,488	20,692,749	24,716,391	16.5%
TRANSFERS TO OTHER FUNDS	(10,109,967)	(11,503,887)	(12,035,104)	4.6%
NET OPERATING ADMINISTRATIVE	\$8,503,491	\$9,188,862	\$12,081,287	31.5%
CULTURAL, LIBRARY & RECREATIONAL				
Administration	\$324,364	\$324,088	\$331,663	2.3%
Cultural Services & Facilities	1,303,519	1,470,435	1,695,228	15.3%
Library	1,556,474	1,475,955	1,652,838	12.0%
Parks & Recreation	7,418,029	7,886,439	8,850,856	12.2%
TOTAL CULTURAL, LIBRARY & RECREATIONAL	10,602,386	11,156,917	12,530,585	12.3%
TRANSFERS TO OTHER FUNDS	(324,751)	(345,298)	(340,949)	-0.4%
NET OPERATING CULTURAL, LIBRARY & RECREATIONAL	\$10,277,635	\$10,811,619	\$12,186,636	12.7%
COMMUNITY PLANNING & ENVIRONMENTAL				
Administration	\$154,844	\$184,525	\$186,808	1.2%
Building Permits & Inspections	614,477	647,587	684,840	5.8%
Economic Affairs	332,053	314,771	344,815	9.5%
Engineering	2,814,753	2,823,280	2,670,447	1.7%
Natural Resources	392,435	494,308	517,591	4.7%
Planning	678,307	721,942	801,939	11.1%
Transportation Services	1,363,529	1,282,486	1,516,715	18.3%
TOTAL COMMUNITY PLANNING & ENVIRONMENTAL	6,160,398	6,468,679	6,923,155	7.0%
TRANSFERS TO OTHER FUNDS	(1,101,501)	(70,989)	(65,904)	7.1%
NET OPERATING COMMUNITY PLANNING & ENVIRONMENTAL	\$5,058,897	\$6,397,910	\$6,857,251	7.2%

Note: Existing departments are clustered under broad service area (programs). Departmental lines are maintained.

Source: Adapted from Dennis Strachota, 1994. *The Best of Governmental Budgeting: A Guide to Preparing Budget Documents*. Chicago, IL: Government Finance Officers Association, Exhibit 3-11.

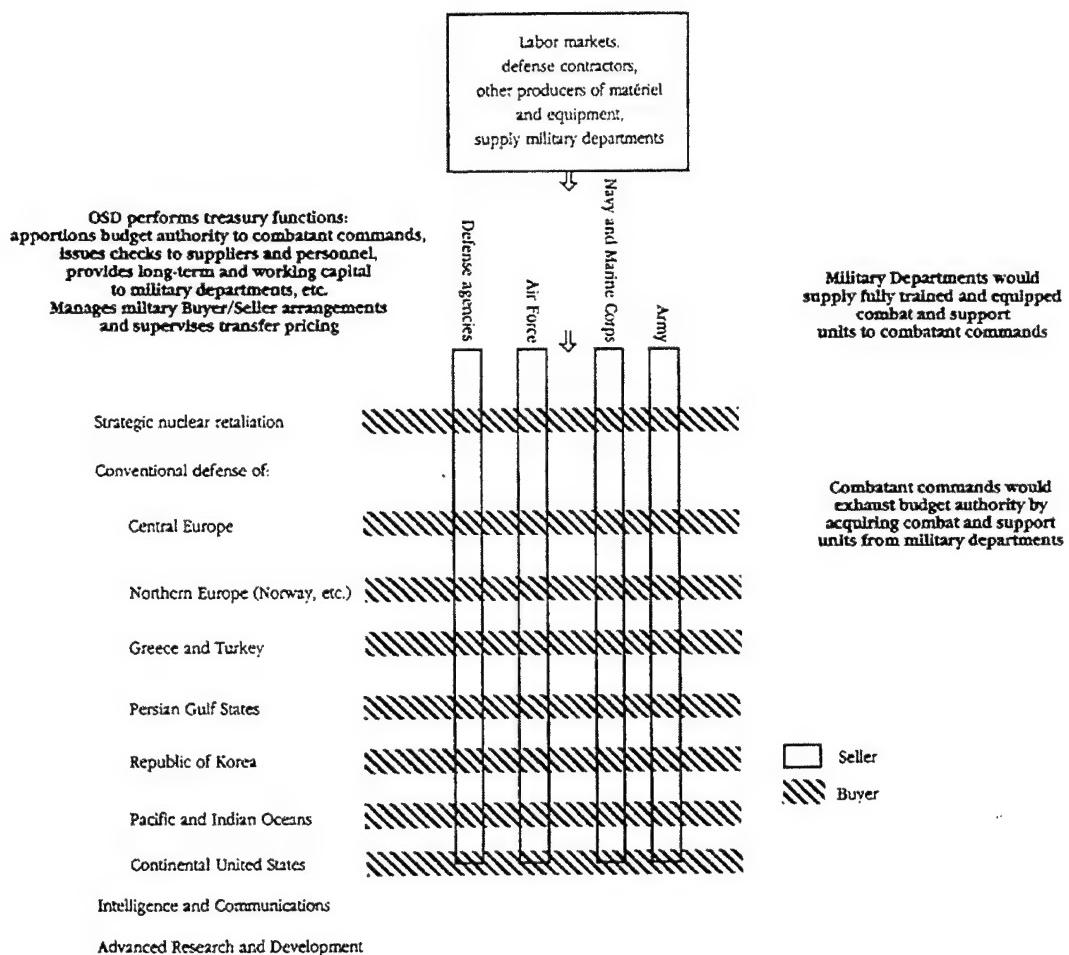
2. For One Program

City of Dayton, Ohio		Community Health and Safety Program																																																																																							
Each budget category is subdivided into "programs" which provides the basis for the program budget.	<p>To protect the lives, health and property of all citizens and to take direct action and lead regional efforts to reduce drugs, crime, violence, and environmentally unsafe conditions.</p> <table border="1"> <thead> <tr> <th>Program</th><th>'92/93 Staff</th><th>1992 Budget</th><th>1993 Budget</th><th>Bgt.% Chng.</th></tr> </thead> <tbody> <tr> <td>Neighborhood Security</td><td>1,004.7/989.9</td><td>\$52,921,200</td><td>\$55,320,600</td><td>4.5%</td></tr> <tr> <td>War on Drugs</td><td>52/50</td><td>\$3,200,000</td><td>\$3,115,100</td><td>-3.0%</td></tr> <tr> <td>Utility System Mgmt.</td><td>412.5/428.3</td><td>\$53,075,400</td><td>\$55,018,600</td><td>3.7%</td></tr> <tr> <td>Environmental Protection</td><td>6/6</td><td>\$17,286,100</td><td>\$13,887,100</td><td>-19.8%</td></tr> <tr> <td>Total</td><td>1,475.2/1,474.2</td><td>\$128,492,600</td><td>\$127,311,400</td><td>0.9%</td></tr> </tbody> </table> <p>■ Community Health and Safety is slightly up 0.8% primarily due to adding capital resources for well field improvements.</p>					Program	'92/93 Staff	1992 Budget	1993 Budget	Bgt.% Chng.	Neighborhood Security	1,004.7/989.9	\$52,921,200	\$55,320,600	4.5%	War on Drugs	52/50	\$3,200,000	\$3,115,100	-3.0%	Utility System Mgmt.	412.5/428.3	\$53,075,400	\$55,018,600	3.7%	Environmental Protection	6/6	\$17,286,100	\$13,887,100	-19.8%	Total	1,475.2/1,474.2	\$128,492,600	\$127,311,400	0.9%																																																						
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Information is provided for each activity within a program.	<p>Operating Allocation Plan</p> <table border="1"> <thead> <tr> <th>Activity</th><th>Department</th><th>'92/93 Staff</th><th>1992 Budget</th><th>1993 Budget</th><th>Bgt.% Chng.</th></tr> </thead> <tbody> <tr> <td>1. Fire Suppression</td><td>Fire</td><td>316/320</td><td>\$18,670,000</td><td>\$19,844,100</td><td>6.2%</td></tr> <tr> <td>2. Hydrant Maintenance</td><td>Water</td><td>3/3</td><td>\$369,100</td><td>\$272,600</td><td>-3.2%</td></tr> <tr> <td>3. Police Investigations</td><td>Police</td><td>80/82</td><td>\$3,746,300</td><td>\$3,416,000</td><td>-8.8%</td></tr> <tr> <td>4. Arson Abatement</td><td>Fire</td><td>4/4</td><td>\$233,100</td><td>\$241,500</td><td>3.6%</td></tr> <tr> <td>5. Municipal Court</td><td>Courts</td><td>65.5/67.5</td><td>\$2,393,100</td><td>\$2,529,300</td><td>5.7%</td></tr> <tr> <td>6. Prosecution of Criminal Cases</td><td>Law</td><td>8.1/8.1</td><td>\$340,400</td><td>\$388,700</td><td>5.4%</td></tr> <tr> <td>7. Human Rehabilitation Service</td><td>Human & Nhd. Res.</td><td>131.8/129</td><td>\$8,708,300</td><td>\$8,670,100</td><td>-0.4%</td></tr> <tr> <td>8. Police Operations</td><td>Police</td><td>294/294</td><td>\$14,831,000</td><td>\$16,014,200</td><td>8.0%</td></tr> <tr> <td>9. Clerk of Courts</td><td>Courts</td><td>68.8/65.8</td><td>\$2,089,800</td><td>\$2,160,800</td><td>3.4%</td></tr> <tr> <td>10. Emergency Medical Services</td><td>Fire</td><td>80/80</td><td>\$2,358,400</td><td>\$2,507,900</td><td>6.3%</td></tr> <tr> <td>11. Prosecution of Traffic Offenses</td><td>Law</td><td>6.5/6.5</td><td>\$294,800</td><td>\$310,000</td><td>5.5%</td></tr> <tr> <td>12. City Jail</td><td>Human & Nhd. Res.</td><td>0/0</td><td>\$850,000</td><td>\$850,000</td><td>0.0%</td></tr> <tr> <td>Operating Total</td><td></td><td>1,984.7/989.9</td><td>\$83,784,300</td><td>\$85,178,600</td><td>4.5%</td></tr> </tbody> </table>					Activity	Department	'92/93 Staff	1992 Budget	1993 Budget	Bgt.% Chng.	1. Fire Suppression	Fire	316/320	\$18,670,000	\$19,844,100	6.2%	2. Hydrant Maintenance	Water	3/3	\$369,100	\$272,600	-3.2%	3. Police Investigations	Police	80/82	\$3,746,300	\$3,416,000	-8.8%	4. Arson Abatement	Fire	4/4	\$233,100	\$241,500	3.6%	5. Municipal Court	Courts	65.5/67.5	\$2,393,100	\$2,529,300	5.7%	6. Prosecution of Criminal Cases	Law	8.1/8.1	\$340,400	\$388,700	5.4%	7. Human Rehabilitation Service	Human & Nhd. Res.	131.8/129	\$8,708,300	\$8,670,100	-0.4%	8. Police Operations	Police	294/294	\$14,831,000	\$16,014,200	8.0%	9. Clerk of Courts	Courts	68.8/65.8	\$2,089,800	\$2,160,800	3.4%	10. Emergency Medical Services	Fire	80/80	\$2,358,400	\$2,507,900	6.3%	11. Prosecution of Traffic Offenses	Law	6.5/6.5	\$294,800	\$310,000	5.5%	12. City Jail	Human & Nhd. Res.	0/0	\$850,000	\$850,000	0.0%	Operating Total		1,984.7/989.9	\$83,784,300	\$85,178,600	4.5%
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Note: Program cuts across departmental lines. The subprogram detail is not presented for the War on Drugs, Utility System Management, or Environmental Protection sub programs.

Source: Adapted from Dennis Strachota, 1994. *The Best of Government Budgeting: A Guide to Preparing Budget Documents*. Chicago, IL: Government Finance Officers Association, Exhibit 2-2.

APPENDIX E. THE NEW MANAGEMENT CONTROL STRUCTURE FOR DOD AS PROPOSED BY THOMPSON (1991) AND THOMPSON AND JONES (1994)



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APPENDIX F. THE STRUCTURE OF THE ESTONIAN DEFENSE BUDGET⁴⁶ FOR 2001 AS ADOPTED BY THE PARLIAMENT

The two-digit codes after the description of the purpose of expenditures are the codes of budget articles that are included in that line. Expenditures for the same budget articles are often divided between different chapters.

Part 132. MINISTRY OF DEFENSE

Chapter 01. Ministry of Defense⁴⁷

Maintenance Costs (10, 21 and 30)

Total

Aids (27)

Total

From that:

- Accommodation Allowance
- Food Allowance
- Other Aids

Pensions (28)

Total

Medicines (42)

Total

Programs of the Regular Armed Forces (52)

Total

Aids (54)

Aids to Social Organizations

From that:

- Union of the Maintenance of war Graves

From that:

- Restoration of the Tallinn Military Cemetery

⁴⁶ This presentation includes only expenditures included in the budget of the MoD and its sphere of administration. The Ministry of Interior, and even to a lesser extent other ministries, also incurs some defense expenditures. However, the budgets of all ministries have a similar basic structure. Therefore, observing only the MoD budget is not a serious limitation.

⁴⁷ Chapter 01 includes the operating expenses of the MoD itself, funds for some specific projects like strategic research, aid to various organizations and some other expenses such as membership fees for international organizations.

of the Regular Armed Forces

- Restoration of the Church of Tori
- Marking of Military Graves
 - "Erna" Organization
 - Veterans Association
 - J. Laidoner Museum
 - Restoration of the Estonian Association of Injured Soldiers
 - Fond of the Assistance of Freedom Fighters

Membership Fees of International Organizations (57)

Total

Other Aids to Physical Persons (69)

Funeral Costs

Chapter 02. Defense Attachés

Maintenance Costs (10, 21 and 30)

Total

Mandatory Insurance (22)

Total

Aids (27)

Total

From that:

- Accommodation Allowance
- Food Allowance

Medicines (42)

Total

Chapter 03. Information Service

Operations (91)

Total

Chapter 04. Funds for Results-Oriented Management

Salaries and Social Tax (10 and 21)

Salaries

Social Tax

Chapter 10. Institutions and Organizations of the MoD⁴⁸

Maintenance Costs (10, 21 and 30)

⁴⁸ This chapter summarizes the operating budgets of organizations of auxiliary nature subordinated directly to the MoD. An example of such an organization would be the Central Pharmacy of the Regular Armed Forces.

Total

Aids (27)

Total

From that:

– Accommodation Allowance

– Food Allowance

Catering (41)

Total

Medicines (42)

Total

Chapter 11. Educational Institutions of the Regular Armed Forces⁴⁹

Maintenance Costs (10, 21 and 30)

Total

Stipendiums (25)

Total

Compensations (26)

Transport Costs of Conscripts

Aids (27)

Total

From that:

– Accommodation Allowance

– Food Allowance

– Aids to Conscripts

Catering (41)

Total

Medicines (42)

Total

Chapter 30. General (Joint) Staff of the Defense Forces⁵⁰

Maintenance Costs (10, 21 and 30)

Total

Aids (27)

Total

From that:

⁴⁹ Chapter 11 includes the operating budgets of the Military Educational Establishments (for officer education), Combat School (for NCO training) and the Estonian part of the Baltic Defense College (for staff officer education)

⁵⁰ This chapter also includes the operating budget of the Army Staff, as these two institutions are physically located in the same building.

- Accommodation Allowance
- Food Allowance

Catering (41)

Total

Medicines (42)

Total

Membership Fees of International Organizations (57)

Total

Chapter 40. Military Units of the Regular Armed Forces⁵¹

Maintenance Costs (10, 21 and 30)

Total

Aids (26)

Transport Costs of Conscripts and Reservists

Aids (27)

Total

From that:

- Accommodation Allowance
- Food Allowance
- Aids to Conscripts

Catering (41)

Total

Medicines (42)

Total

Chapter 52. NATO “Partnership for Peace Program”

Maintenance Costs (10, 21 and 30)

Total

Chapter 53. Defense-Related Projects⁵²

Maintenance Costs (10, 21 and 30)

Total

Mandatory Insurance Fees (22)

Total

Compensations (26)

⁵¹ Chapter 40 includes the operating budgets of most military units: six infantry training battalions, Artillery Group, Air Defense Training Battalion, Air Force staff, Airbase, Navy (all naval units are physically located in the same place), Central Depots, Reconnaissance Battalion, Signals Battalion, Logistics Battalion, Central Training Area and some other minor auxiliary units like Orchestra of the Regular Armed Forces.

⁵² This chapter summarizes the operating budgets of the Peace Operations Center, of most Baltic projects - the Baltic Battalion BALTBAT, the Baltic Squadron BALTRON (for mine warfare), the Baltic Air Surveillance project BALTNET - and the costs of Estonian representatives in NATO.

Conscript Transportation Costs

Aids (27)

Total

From that:

- Accommodation Allowance
- Food Allowance
- Aids to Conscripts

Catering (41)

Total

Medicines (42)

Total

Medical Examination of Conscripts (44)

Total

Chapter 60. National Defense Departments⁵³

Maintenance Costs (10, 21 and 30)

Total

Aids (27)

Total

From that:

- Accommodation Allowance
- Food Allowance
- One-Time Aids to Conscripts

Information Technology (37)

Total

Medicines (42)

Total

Medical Examination of Conscripts (44)

Total

Defense-Related Registration in Local Governments (52)

Total

Chapter 81. Defense League⁵⁴

Aids (54)

Total

From that: for reserve training up to

⁵³ These organizations are directly subordinated to the MoD. Their task is to call conscripts and the reservists into service and they are responsible for most of the defense-related registration of people and of mobilization reserves.

⁵⁴ This is the part of the operating expenses of the Defense League that are allocated through the defense budget. Additionally, the Defense League finances part of its operations from its revenues collected from providing guarding and other services.

Chapter 91. Special Equipments and Military Clothing⁵⁵
Defense-Related Equipment, Inventory and Materials (46)

Total for procurement

Chapter 97. Investments of the MoD Sphere of Administration⁵⁶

Investments

From that: Capital Repairs (73)

 Procurement of Movables (76)

 Procurement of Immovables (77)

Chapter 98. Other Expenditures of the MoD Sphere of Administration

Information Technology (37)

Total

Part 132 MINISTRY OF DEFENSE total expenditures

⁵⁵ This chapter summarizes most of the expenses for central MoD procurement (special equipment and military clothing). Additionally, the military units have the right to procure minor things from their own operating budgets. However, this chapter does not summarize all procurement. Procurement related to information technology is also given outside of this chapter in article 37 (Chapter 98), but this article also includes maintenance costs of computer networks. Some procurement costs are also in Chapter 97.

⁵⁶ This chapter summarizes the expenses for central procurement designated as strategically important for the state or the so-called National Investment Programs, or expenses designated as investment by the MoD. Generally, the chapter summarizes costs for procurement of land and buildings, for capital repairs and construction (article 77 Procurement of Immovables) and procurement of transportation vehicles (article 76). It must be noted, however, that the distinction between this chapter and chapter 91 is sometimes fuzzy. Generally, procurement goes into chapter 91 and costs for infrastructure into chapter 97. However, procurement of mobilization reserves is financed from chapter 91, although this could be designated as investment. On the other hand, if the procurement of mobilization reserves is designated as strategically important for the state, then the funds may also come from chapter 97.

APPENDIX G. PROPOSED MISSION PACKAGES

Package 1: Training and Education: A1, A2, F1, F2, N1, N2, DL1, DL2, DL4

Army Missions:

1. Training and educating personnel to established standards to include inculcating strong spirit to defend the nation (A1)
2. Conducting training for all units at designated readiness levels (A2)

Navy Missions:

1. Training and educating personnel to established standards to include inculcating a strong spirit to defend the nation (N1)
2. Conducting training for all units at designated readiness levels (N2)

Air Force Missions:

1. Training and educating personnel to established standards to include inculcating a strong spirit to defend the nation (F1)
2. Conducting training of all units at designated readiness levels (F2)

Defense League Missions:

1. Conducting professional training according to established tasks, conditions and standards (DL1)
2. Conducting professional training according to established tasks, conditions and standards (DL2)
3. According to established standards, conducting refresher training of Territorial Defense Units (DL4)

Package 2: Readiness: A3, F3, N3

Army Mission

1. Maintaining units at designated readiness levels (A3)

Navy Mission

1. Maintaining units at designated readiness levels (N3)

Air Force Mission:

1. Maintaining units at designated readiness levels (F3)

Package 3: Alliances and Partnerships (this could further be classified into Host Nation Support and Participation in International Operations): A4, A11, F4, F9, F13, N4, N8, N9, N18

Army Missions:

1. Providing designated forces for combined exercises and operations with NATO and other partners (A4)
2. Upon approval of the government, activating of host national support system for external forces (A11)

Air Force Missions:

1. Providing designated forces for combined exercises and operations with NATO and other partners (F4)
2. Participating in the development of airfields, which are interoperable with the standards of NATO and other partners (F9)
3. Upon approval by the government, activating host national support system for external forces (F13)

Navy Missions:

1. Providing designated forces for combined exercises and operations with NATO and other partners (N4)
2. Participating in the development of seaports that are interoperable with the standards of NATO and other partners (N8)
3. Providing designated forces for naval exercises and operations with NATO and other partners (N9)
4. Upon approval of the government, activating the host nation support system for external forces (N18)

Package 4: Mobilization and Deployment (Transition to War): A7, A8, A9, A10, F10, F11, F12, F14, N11, N13, N14, N15, N16, DL5, DL6

Army Missions:

1. Transition to wartime command structure (A7)

2. Increasing readiness levels of designated units through intensifying training and exercising wartime tasks in case of crises (A8, alternatively Programs 1 or 2))
3. By direction of the Parliament/President, mobilizing designated forces according to plans and standards (A9)
4. Integrating the ground units of the Ministry of Internal Affairs in case of crises (A10)

Navy Missions:

1. Leading and intensifying maritime surveillance (in transition to war) (N11)
2. Integrating designated maritime units from other ministries and civilian assets in times of crises (N13)
3. Transition to wartime command structure in case of crises (N14)
4. Increasing readiness levels of designated units through intensifying training and exercising wartime tasks in times of crises (N15, alternatively Programs 1 or 2)
5. During transition to war, and during wartime, conducting search and rescue (N16, alternatively Program 6)

Air Force Missions:

1. Transition to wartime command structure in case of crises (F10)
2. Increasing readiness levels of designated units through intensifying training and exercising wartime tasks in times of crises (F11, alternatively Programs 1 or 2)
3. Integrating air units from Ministry of Internal Affairs and civilian air assets in times of crises (F12)
4. Providing air traffic management (transition to war) (F14, alternatively Program 8)

Defense League Missions:

1. Assisting in mobilization (DL5)
2. Assisting in forming national defense units (transition to war) (DL6)

Package 5: Wartime operations: A5, A12, A13, A14, F15, F16, F17, N6, N12, N17, N19, N20, DL5, DL6, DL7, DL8, DL9

Army Missions:

1. Conducting coastal defense (A5)

2. As directed by lawful authorities, providing ground forces to defend national territorial integrity (A12)
3. Conducting joint/combined operations (A13. This seemed to be the best place for this mission, although this mission covers almost every program. In this sense its place is disputable)
4. Maintaining essential interior lines of communications (A14)

Navy Missions:

1. Providing designated forces for coastal defense (N6)
2. Preparing for the defense of strategically important assets from the sea (N12)
3. Supporting the operations of defense forces with naval assets (N17)
4. Sea denial around strategic locations in wartime (N19)
5. Securing sea lines of communication in territorial waters (N20)

Air Force Missions:

1. Conducting air operations, including air defense, in support of defense forces (F15)
2. Conducting combined and joint air operations (F16)
3. Combat Search and Rescue (F17)

Defense League Missions:

1. Forming the territorial defense units at designated readiness levels (DL7)
2. Through absorption of designated units and individuals into national defense organization, participating in the defense of the country (DL8)
3. Providing remaining Defense League assets to support national defense (DL9)

Package 6: Defense Support to Civil Authorities: A6, F8, N10, N16, DL3

Army Mission:

1. Lending designated forces, as stated in legislation, to civilian authorities in natural disasters, civil unrest or man-made catastrophes (A6)

Navy Missions:

-
1. Conducting maritime search and rescue operations (peacetime) (N10)
 2. During transition to war, and during wartime, conducting search and rescue (N16)

Air Force Mission

1. Providing designated forces for national search and rescue operations (F8)

Defense League Mission:

1. Assisting civilian authorities in natural disasters or man-made catastrophes (DL3)

Package 7: Monitoring and Control over Airspace and Territorial Waters:

F5, F6, F7, N5, N7

Navy Missions:

1. Conducting maritime military surveillance (N5)
2. Conducting naval operations (N7)

Air Force Missions:

1. In peacetime, providing air traffic management (F5)
2. Developing the air situation picture (F6)
3. Conducting air policing (F7)

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